



FRIDAY, NOVEMBER 4.

Contributions.

The Philadelphia, Wilmington & Baltimore Railroad.

PHILADELPHIA, Oct. 10, 1881.

TO THE EDITOR OF THE RAILROAD GAZETTE:

The control of the Philadelphia, Wilmington & Baltimore by the Pennsylvania Railroad began last month by setting up in the Philadelphia, Wilmington & Baltimore's offices the Pennsylvania's system of accounts. Part of the accountants were at the same time removed to a building close by the Pennsylvania's headquarters on Fourth street.

The Philadelphia, Wilmington & Baltimore's accounts had been kept on a uniform method for 16 years, not because it was thought to be the best one in existence, but in order to make possible exact comparisons of one year with another. Few roads could better afford to have such comparisons made. Since 1850 there have been but two presidents in its control; sixteen years ago, one of these was taken ill and his friend and fellow-director took his place, retaining it until now. In taking office he found nearly all his officers already upon the road, and they all, almost without exception, remain with him.

ITS CHARACTER.

As to its general management, the road was among the earliest to adopt steel for rails, and has been most persistent in testing every delivery of steel rails. Messrs. John Brown & Co. were, many years ago, much disturbed on hearing that some 80 (out of 600) tons of rails delivered by them, had been rejected by the Philadelphia, Wilmington & Baltimore, but their agent, after seeing the tests applied, expressed himself as grateful, as did also the firm shortly after, for the care which the road had taken, resulting as it had in the discovery of the brittle quality of this lot of metal.

The rails in use on the road, with the exception of a small experimental lot, are all of hammered steel; Philadelphia, Wilmington & Baltimore experience being that no other form of steel is so economical—indeed doubt is thrown by it on the economy of using any other form of steel for rails.

The block system of control over train movement has been in use since about 1872, beginning upon a small section and gradually extending over the entire main line. Automatic signals of many and various kinds were carefully tested, but all were finally rejected as less reliable than the human nervous system.

The Wharton switch was introduced in 1869, the right being purchased for the road.

Mr. Dudley's dynamograph car was built by the road for him, but under an arrangement, which is nearly completed, for its purchase by him. A quarterly inspection of the track was made by this car.

A car for carrying fish spawn and fry was built on like terms for the United States Fish Commission, and through the influence of the Philadelphia, Wilmington & Baltimore concessions were obtained for its transportation on all principal and necessary lines at 20 cents per mile. It was held that the propagation of the food fishes and the resulting freight would in time fully repay these concessions.

These facts bear their own witness, as would others if stated, to a liberal, progressive spirit.

That quality in which the management of the Philadelphia, Wilmington & Baltimore has been pre-eminent is not easy to describe precisely; it will be best understood, perhaps, by a short narrative of the road's early state and its later conditions.

Its origin dates back to the first era of American railroads (1830-35), but it was not completed until 1838, and even then it was a very incomplete road. The track was not ballasted, the light, flat rail was unfitted for its purpose, and there was little money with which to make improvements of any kind. Its directors struggled hard, and did, no doubt, mighty things for those early days; but at last certain people in Boston, among whom were the Thayers, took an interest in its affairs and bought up a large portion of the stock, sending first Mr. Swift and then Mr. Samuel Felton to Philadelphia as their representative and President. What railroading was in those days may be inferred from the fact that in his report for one of the later years President Felton estimated \$20,000 lost in running one freight train *per diem* each way over the road for the year 1850.

The Philadelphia, Wilmington & Baltimore was, however, a great opportunity, and not a few Boston people got year by year a solid appreciation of its value, and buying the stock at \$25 to \$35 per share (par value \$50) held stoutly to it until last February. There was no speculation in the stock; it was stock for investment and was bought as such by many small holders, so that at the last it took nearly 150 names to make up a list controlling one-half of the total number of shares, and nearly all of these were names of Boston and other Massachusetts people. It is of interest, too, to know how fared these quiet, careful holders by their long held stock. For 18 years they received yearly 8 per cent. (for two or three 10 per cent.) on the par value of their investment, and buying as late as 1865, let us say, at \$34 (gold) per share and selling at \$78 per share, they also had a profit of 129 (and nearly one-half) per cent. Others have invested money more profitably than this, but surely it is not often that plain, quiet people can keep an un-

troubled mind and a good conscience and get a greater financial profit.

There is an historical basis for supposing that character lay at the bottom of the management of the Philadelphia, Wilmington & Baltimore Railroad. These quiet Eastern people must trust some one to take care of their property in Delaware and Maryland, and they chose a man whom they could trust, and trusted him. The result was that the management of affairs was largely personal, the President choosing men in whom he had full confidence, and trusting them, and these again others, until the principle got into every thing human, and no man was supposed to be valuable merely for what he could do, unless he could be trusted to do it continuously well as a gentleman. Permanence of tenure rested not upon rule, but upon the character of the men employed.

I have met with no railroad, nor known the affairs of any, which has given me so much reason to infer the presence of a conscience somewhere within it.

The Philadelphia, Wilmington & Baltimore was so largely a passenger road that from one-half to two-thirds of its receipts were from this source. Its freight traffic was peculiar, ripe fruits and berries forming a considerable portion, which paid indeed high rates, but was of great bulk, required rapid transportation and the return of profitless boxes. As a passenger road, the average car-load was greater perhaps than on any other, with one or two possible, but by no means certain, exceptions. The traveling public have labored—and some of the local public seem to have labored a good deal and not wisely—under the impression that the rates of fare were high. This, however, is not correct, the rates cannot be said to have been higher than those on the Pennsylvania road between Philadelphia and New York, where competition is severe. The local rates to Wilmington were two cents a mile and less, matching the Pennsylvania's limited rates from Trenton to Philadelphia, and equaling the lowest reduced rates on the Hudson River Railroad.

In fact it is difficult to see what the people of Wilmington wanted, whose agitation did much to produce a change. They said they wanted another railroad, but they were also sure that they wanted low rates of fare, and evidently did not wish to pay a profit on the cost of an investment whose benefit they hoped to secure. One of the most difficult things for the public to see is that it must pay the fiddler after the dance, whoever hires him.

One of the curiosities of the sale of the Philadelphia, Wilmington & Baltimore was the check drawn by the Pennsylvania road, a small piece of paper, whose gold equivalent would have been 36 tons of aurodupois.

Whether the time had come for a consolidation, whether the necessities of the case required this, it is certain that on its part the Pennsylvania was equipped and ready for the change, and that the road could not have fallen into better hands.

The road has become part of a vast and admirable machine, but it is both to be hoped and expected that it will not cease to make railroad men.

The "Fontaine" Locomotive.

The following is a letter from Mr. John Orton, of the Canada Southern Railway, published in the *Scientific American Supplement* of Nov. 5:

In compliance with your special request, I have much pleasure in furnishing the following data and remarks relative to the locomotive engine "Fontaine." A very general description of the leading particulars has been given previously, but as many of our readers may not have seen those particulars, it will not be out of place here to reproduce some of them:

Diameter of cylinders	16 in.
Stroke of piston	24 "
Diameter of driving wheel	72 "
" " friction "	56 "
" " rolling "	70 "
Total wheel base	21 ft. 5 "
Total weight of engine in working order	84,000 lb.
" " on drivers	34,000 "
Diameter of barrel of boiler	48 in.
Dimensions of fire grate	62 in. x 33 3/4 "
Number of tubes	140
Outside diameter of tubes	2 in.
Length of tubes	11 ft.
Square feet of grate surface	14 1/2
" " heating surface in fire-box	100
" " " tubes	806
Total heating surface	906 sq. ft.

For several months the engine has been running in general passenger service on the Canada Southern Railway, and during that time has done some good work. The boiler and machinery differ in construction very little from those of the ordinary kind, except that the driving wheels are elevated so that their axle is just above the top of the boiler, and the cylinders and motion work are at an inclination of 17 1/2 degrees to correspond. In a vertical line, and immediately between the drivers and the rails, are auxiliary wheels of a double tread construction, combining friction and rolling wheels in one. Both driving and friction wheels have plain cylindrical turned steel tires, but the rolling wheels have the ordinary flanged tires for running upon the rails. The spread or gauge of driving and friction wheels is alike, the inner faces of the tires being just wide enough apart to clear the outside of the rolling wheels.

The propelling power of the rolling wheels is entirely due to the frictional contact and revolving force communicated to the friction wheels by the drivers, and is proportionate to the weight and force with which the frictional surfaces are brought together and made to revolve. In order to insure the efficiency of the frictional contact, and prevent the wheels slipping over each other, a small steam cylinder communicating with the boiler is fixed on each side framing, to which a system of levers and connections is so devised that by opening the communication between the boiler and small cylinders the upper and lower wheels are brought together with a force considerably above the normal weight effected by mere gravitation of the drivers, so as to include the weight of the lower wheels in the adhesive power of the engine. This frictional device is used chiefly when starting a train, or when a heavy pull is necessary, and requires the greatest adhesion, but when running quickly, or hauling

light trains, the normal weight of the driving wheels, as they bear on the lower ones, give all the adhesion needed.

In its operation the "Fontaine" differs from an ordinary engine in the fact that in the latter the fulcrum of the applied force is at the tread of the wheels in their contact with the rails, and its power is given out at the crank-pin when that is above the axle, and on the front cylinder-head, and thence to the axle when the crank is below it; whereas, in the "Fontaine," the fulcrum of the applied force is constantly at the axle of the drivers, and the power given out is continuously at the perimeter of the drivers, at the points in contact with the friction wheels, the effective power being the same as would be were the drivers and friction wheels geared with spur teeth.

Paradoxically though it may appear, the "Fontaine" is, in reality, a stationary engine, so far as its machinery is concerned, but by the interposition of the auxiliary wheels, effecting a junction with the drivers and the rails, the engine becomes at once a locomotive or moving force.

An investigation of the power of such an engine necessarily requires a *modus operandi* different from that of an ordinary engine, inasmuch as the peculiar combination of the wheels is a departure from the usual practice, and introduces a principle for which there has been no precedent nor any regular formula established.

The power given out at the perimeter of the driving wheels revolving around their axle as a fixed centre or fulcrum, as in the case of the "Fontaine," is precisely equal in effect as though the wheels ran upon rails, and the power was concentrated and given out at the crank pin, but with this distinction, that in addition to the usual power, there is a re-enforcement through the medium of the auxiliary wheels, which fact, unfortunately, appears to be somewhat misunderstood, and, therefore, it will be well here to try to make that point clear. Preparatory, however, to taking up the point as represented in the "Fontaine," the principle involved will perhaps be more readily understood from the following illustration. Let us assume that the driving and auxiliary wheels are exactly of equal diameters, and that the driving wheels are made to revolve. The effect of this would be that in one revolution of the drivers the lower wheels also would make one revolution, and travel on the rails a distance equal to the circumference of the wheels; and if a train of cars had been attached to the axle of the lower wheels, the train would also have been hauled an equal distance. Now, the propelling force applied by the drivers at the top of the lower wheels, in consequence of the leverage there being twice that of the resisting force at the axle, would pull double the weight that evidently could be done were the same force applied in a direct horizontal line with the axle of the lower wheels.

The superiority of the "Fontaine" is based on the soundness of this principle of re-enforcement of power by the interposition of the auxiliary wheels; the tractive power, however, of such engines will necessarily vary with the relative differences in the diameters of the wheels, and the consequent leverage of the resisting force acting at the axle of the lower wheels. Now, if we take the wheels of the "Fontaine," as in operation, the driving wheels being 72 in., the friction wheels 56 in., and the rolling wheels 70 in. in diameter, we have a combination, which, under an equal speed of piston, will have the effect of increasing the progressive speed of the engine on the rails to that of an ordinary engine with driving wheels 90 in., or 7 1/2 ft. diameter. This increase of speed, however, necessarily reduces, in a measure, the tractive power, in an inverse ratio with the resultant equivalent for the larger sized wheels, except that, as the applied or propelling force operates at 63 in. from the rails, while the resisting or opposite force acts at 35 in. from the same point, there will be a re-enforcement or theoretical difference of power equal to nearly eighty per cent. in favor of the "Fontaine" arrangement. It should be borne in mind, however, that the whole of this large excess of gain has never been claimed in practice, for the reason that a large portion of it is absorbed in the additional friction involved by the use and action of the extra wheels and bearings; but there is undoubtedly an advantage gained over an ordinary seven and a half foot single driver engine, equivalent to at least thirty per cent., which can be utilized to that extent either in the pulling of heavier trains, or running at greater speed with similar trains; or the speed may be equal, and there will be thirty per cent. less expenditure of fuel.

The novelty in the construction of the "Fontaine" has called forth from some scientific experts very peculiar criticisms with regard to its capabilities, but in no case has there appeared anything like a reasonable exposition given, in which a fair comparison was made with an ordinary engine of equal resultant dimensions. In one mechanical paper, a distorted diagram was published, and an argument based thereon to prove the fallacy of the "Fontaine," but either prejudice, or the ignorance of the writer with respect to the action of the locomotive, was evident from the fact that, in comparing the propelling forces of the wheels of the "Fontaine" and an ordinary engine, he assumed in his calculations that the leverage forces had their fulcrums at the axle instead of at the rails. Thus the results deduced were as erroneous as the argument; for it is a well-known fact that all wheels in locomotives used for propelling purposes and running upon rails have their fulcrums at the rails, while the distances to the centres of their axles, as measured from the rails, are, taken alternately with the backward and forward strokes of the pistons, either the long or short arms of the propelling levers.

A careful investigation of these forces will prove the theory herein set forth, and will, without any doubt, confirm the superiority of the "Fontaine" as a combination for speed and power over any other existing type of locomotive.

JOHN ORTON,

Canada Southern Railway.

ST. THOMAS, Ont., Oct. 12, 1881.

Sir Henry Tyler on the Railroad War.

In his speech before the half-yearly meeting of the Grand Trunk Railway Company in London, Oct. 6, the President, Sir Henry Tyler, M. P., spoke as follows of the war of rates:

I wish some of you would tell me the cause of this war of rates, because that is a very difficult question to answer. A great many causes have been assigned for it, one of which I told you of at the last meeting, which was a special meeting. It was then supposed to have commenced with the unfortunate agreement between the Great Western and Wabash companies. That agreement has never been published, and we do not profess to know what the contents of it are. But there are people who do profess to know, and they say that the Great Western Company agreed to carry traffic from the Wabash system at less than half the cost at which it was before carried over the Lake Shore system; and that Mr. Vanderbilt was exceedingly angry on that account, and naturally demanded that his Michigan Central traffic should be carried at the same rate as the Wabash traffic was carried over the Great Western. That may have given it a start, but still that could not account for all that has happened

since, and for the existing competition that is still going on.

Then it was stated that Mr. Vanderbilt was very much dissatisfied with the building up of Philadelphia and Baltimore, and that is the reason why I gave you the statistics on that subject. It was said that he was very much dissatisfied with the traffic carried by the Pennsylvania and Baltimore & Ohio railroad companies, and he was determined to put a stop to it as far as he could; but he would find it a difficult task to accomplish, for the Pennsylvania road is very powerful, and Mr. Garrett, also, the President of the Baltimore & Ohio road, who is a redoubtable antagonist, is reported to have recently had a good deal of altercation with Mr. Vanderbilt. That is assigned as another reason.

Then, again, we are told that Mr. Vanderbilt was disgusted with the traffic which the Erie Company carried last winter and spring, some of which he thought they stole from him, and which they could not have got without cutting rates, and, therefore, he began to cut.

Mr. Fink gives other reasons, and he tells us one reason of this cutting of rates is that there are a great many men who manage different express lines, and lines running over different systems, and who make rates independently of the managers of the railways, and he believes the managers and presidents are not able to control those gentlemen. They make rates which are bound to be honored by the managers of the different lines they run over, and they cut rates as they please against one another. But it appears to me that any president or general manager who cannot control those working under him and with him ought to be dismissed and some other put in his place. I can only say that no person on the Grand Trunk system shall cut rates against our wishes. (Hear, hear.)

There is another reason given. I am only giving you the different reasons which have been advanced, and I have not expressed any opinion upon them. That other reason is that there are certain speculators, and those gentlemen are some of them in a position, directly or indirectly, to control rates, and are able to put them down when they like, and put them up when they like. They go—it is said—into speculations of buying and selling stocks, with a view to provide a profit for themselves, and they thus sacrifice the interests of the shareholders and the companies for their private benefit. (Shame.) There are various circumstances that give color to that statement; for instance, on one occasion when I was in America, some years since, I had the honor to meet the presidents of the other four trunk lines, and we all agreed that it was very stupid and very silly to cut each other's throats; we promised to be good boys, and that we would not have any cutting in future. We agreed that we would buy up certain contracts which had been then made by the Wabash Company to carry below the authorized rates. Mr. Vanderbilt promised to supply one-third of the money requisite to buy up those contracts, and the other companies were to find the rest between them. We thought we were going to have a real reform, and a better state of things as regards rates. From that time forward for several months rates went from worse to worse, and I could not understand it at all. I believed that they were acting in good faith, and I still believe they were, almost all of them. But what happened? We found at the end of a few months that a certain millionaire bought up the majority of shares in the Michigan Central Railway, and Mr. Garrett told me when he came over in the following spring that he could not previously understand it, but he had come to the conclusion that Mr. Vanderbilt wanted to buy the shares of the Michigan Central Road at a cheap rate. That appeared to be the main reason why the rates had been kept down. Mr. Vanderbilt has recently refused to allow the freight rates to be put up, and he has been doing a good deal to keep them down; but what his object is I certainly cannot tell.

I will now read a letter to you which I have received from a gentleman thoroughly well informed on the subject, but I will not mention his name. He says, in plain terms, that at the present time it is alleged, without causing the slightest surprise, that the war is being waged for the express purpose of lowering the price of stocks, in order that large operators may repurchase securities which they had previously sold at higher prices. There is some color for the accusation, because we heard that people were selling on this side and on that side, and there seemed to be some preconcerted scheme for bearing the stocks at a particular period; and this, I suppose, must have been known, and that something would happen to enable them to buy them back at a lower rate. Of course, we who were not in the secret could not see any reason why the stocks should be sold at that particular time, but we may reasonably assume that there must have been previous knowledge if there was a preconcerted scheme for such operations. This gentleman goes on to say: "Shrewd and frequently accurate observers give this complexion to the present contest. It would be difficult to imagine the chairman of the Northwestern, Great Western, or Midland operating in the stocks of those concerns, lowering rates throughout England, and after accomplishing the purposes of the movement, restoring tariffs and resuming their ordinary positions at the head of those systems as if nothing had happened. Personally, of course, we can have no knowledge of any such transactions on this side of the Atlantic; but such statements are openly made without blush, and are accepted as one of the probabilities of the case. Whatever the reason may be it is concealed, and we do not know why passenger fares are day by day approaching the zero point."

Now, we, the Grand Trunk, had something to do with passenger fares after that letter was written. We had a line of our own to take—I want to be perfectly frank with you, and to tell you all that we have done in this matter. When we found the passenger fares going down, and down, and down, at last we thought we would go to the bottom, and we put the passenger fares down to \$5 between New England and Chicago. I will tell you why we did it. It was because we carry mostly freight traffic on our system, and these other companies carry more passenger traffic and obtain large profits from it. We were not getting much out of our passenger traffic, and by filling our trains in this way we could better afford to carry at low fares, while the other companies could not afford to lose what we took from them. But, in order to show exactly what happened, I will read the official report of what was done in this respect: "On the 5th ult. we were notified that the Boston & Albany and Hoosac Tunnel companies would, on and after 6th, put in force a reduction of \$4 on first and \$3 on second. Our rate was consequently reduced. On July 11 the other lines further reduced to \$16 first and \$14 second. On July 15 first-class tickets were reduced to \$15, and on the 18th inst. to \$12; and these reduced rates were put in force at Springfield, Worcester, Rutland and other internal points. These alterations were consequent upon corresponding reductions from New York to Chicago. They were made through the agency of agents, and, as already advised, tickets reached the price of \$8." Scalpers are persons who buy tickets from one man and sell them to another, and by methods which I need not explain diminish the profits of the railway companies in doing so. But lately they have been allowed to buy tickets from certain of the railway companies at low prices, and sell them out cheaply to the public. In my opinion it would be well if, instead of employing them for such operations,

all the companies would unite with one another to crush out the scalpers, like Sir William Harcourt would stamp out his "nest of vipers." The report goes on: "To meet this New York price the other routes again reduced the Boston rate to \$9.50, and on the 29th ult. (July) to \$8 Boston to Chicago." Now, here we began. When it came to this we thought it was time to act, and "in order to accelerate a settlement, and to reach at once a bottom figure, we reduced, as you know, to \$5, and, as that was not effectual, on the 2d inst. (August) the same charge was made to passengers from Chicago to Boston. Hitherto the other lines have not followed the Chicago fare, but it has probably accelerated recent proceedings and declarations. Since the establishment of the \$5-rate from Chicago, i. e., from the 2d to the 10th inst., 2,602 tickets have been issued; 906 tickets have been purchased in Boston and 95 from New England points. We are informed that passengers have expressed themselves highly pleased with the Grand Trunk route and the service." I should think the passengers ought to be satisfied with being carried at that price. (Laughter.) I want you clearly to understand what part we have had in this cutting of rates. As regards freight rates, we have had no part in it whatever, and have all along protested against it; but as regards the passenger rates, when they were found to be going down, and down, and down, at last we went to the bottom, and there we are.

And next, gentlemen, as regards the remedy for this state of things, for that is a most difficult subject. All sorts of remedies have been proposed, and many tried. Mr. Fink has long been appointed Commissioner, and a very honest Commissioner he is, and we are always ready to go before Mr. Fink and let him settle all these disputes, and are ready to abide by his decisions, and Mr. Fink knows it. (Cheers.) But, unfortunately, others will not always agree to do the same. The American companies have appointed three other gentlemen, as arbitrators, very honest and able gentlemen; and those gentlemen are so disgusted with the position that they have declined to draw their salaries until something is done to bring the business before them. Money pools are ineffective, because there is no means of enforcing payment from defaulters; and physical pools, that is to say, actual divisions of traffic, have broken down, because certain of the companies will not adhere to their obligations. So these remedies have not been effective. The only remedy I have to suggest is one of which I have had some experience. When I was a government inspector of railways, I set to work some fifteen years ago to see how I could best—what is not so directly in accordance with my present position—bring about a reform in enforcing improvements in the interest of safety on directors of railways in this country. (Laughter.) We had a great deal of discussion at different times as to how we could get improvements made upon railways. Many people advocated legislation; some advocated one thing and some another. I always said there is only one way in which we can act upon railway companies, and that is by public opinion. All you have to do is to find out the truth of everything that happens and clearly state it, and the public will do the rest. The remedy I should now propose for the state of things in America is just the same. I have seen it succeed admirably for one good object in England, and I believe it will succeed equally well with our present object in America. If American gentlemen would themselves set to work to discover who are these people who lower the rates, and what they do it for, and would publish without fear, favor or affection the results of their discoveries, I believe the cure would not be far distant. I have given you the various theories which have been started to account for it, and if they would set to work to find out what are the causes operating—whether there are speculators bearing stocks, or buying up stocks—if they would discover the true "inwardness," as they term it, of all these recent operations, and set it clearly before the American public, I am sure it would do more to stop this abominable state of things than anything else that we can devise. (Loud cheers.)

Standard Time.

At the meeting of the General Time Convention in New York, Oct. 13, the following was presented by Mr. Ormond Stone, Chairman of the Committee on Standard Time of the American Association for the Advancement of Science:

U. S. ARMY SIGNAL OFFICE,
WASHINGTON, D. C., Sept. 30, 1881.

Chairman General Time Convention:
SIR: For several years past the scientific and other societies of this country have urged that there be some steps taken toward a greater uniformity in the time adopted for the time-tables of the railroad and transportation companies. Many believe that one absolutely uniform "Railroad and Telegraph Time" could be adopted for the whole country, leaving each person to set his watch by any local time he may choose. Certainly we see no reason why towns a few miles apart should be running on diverse times, when it is more convenient to adopt a conventional common standard. If the railroad and telegraph offices will have their clocks set to one or a few standards, we shall all be glad to unite in urging and ordering that our employes adopt the same standard, whatever it may be. I send you herewith a report of the American Metrological Society, in which a system of standards one hour apart is recommended. I can add that, since that report was written, there has been shown a disposition to adopt the 90th meridian as a standard for the whole country. This, it is expected, will soon be the standard time sent by telegraph throughout the Mississippi Valley, and we believe that every observatory now sending time signals, with one exception, has declared in favor of the simplicity, the convenience and accuracy that will be gained by the adoption of this time in all railroad, telegraph, postal and signal work. I inclose, also, a copy of a circular letter from the Chief Signal Officer bearing on this subject. I should be glad to have your convention give me an opportunity of presenting this subject before it, and of learning from you some of the difficulties and advantages of the proposition.

I am, very respectfully yours,

CLEVELAND ABBE,
Chairman Committee on Standard Time of the American Metrological Society.

AMERICAN METROLOGICAL SOCIETY—STANDARD TIME,
CIRCULAR NO. 2.

It is with great satisfaction that the Council of the American Metrological Society lays before the public the following communication from the Chief Signal Officer of the United States, which evinces the deep interest taken by that officer in the effort now making to introduce uniformity of time standards throughout our country, and his readiness to contribute toward the advancement of this desirable end by all the means at his disposal:

WAR DEPARTMENT, OFFICE CHIEF SIGNAL OFFICER,
WASHINGTON, D. C., March 1, 1881.

Dr. F. A. P. Barnard, President of the American Metrological Society, etc., Columbia College, New York City:
SIR: It gives me pleasure to inform you that it seems to me eminently proper that the Signal Service should, so far as practicable, contribute toward the public dissemination of "standard time," for the benefit of commerce and other interests.

This office has for several years co-operated at Boston with the Observatory of Harvard College, in the maintenance of a public "Time Ball," in accordance with the terms specified in the accompanying memorandum No. 1; and I am ready to make similar arrangements with any other community that may desire it, and provided we have, at that place, a signal service station already established. You will find a list of such stations in accompanying memorandum No. 2.

Recognizing the valuable work already accomplished by the American Metrological Society in the interests of accurate and uniform "Standard Time," I have only to add the hope that you will co-operate with this office in the extension of this useful work.

I am, very respectfully, your obedient servant,

W. B. HAZEN, Chief Signal Officer.

MEMORANDUM NO. 1.—CONDITIONS ON WHICH THE CHIEF SIGNAL OFFICER CO-OPERATES WITH OTHERS IN THE MAINTENANCE OF A PUBLIC STANDARD TIME BALL.

1. At any Signal Service Station already established for the benefit of commerce and agriculture, and at which two (2) or more men are necessarily stationed, the Chief Signal Officer will contribute such portion of the time of one man as will be necessary, in order to keep in perfect working order the ball, mast, electrical and other apparatus at the station, and will have the ball hoisted daily at the proper time, and the electric connections properly made; provided this does not, on the average, require more of the time of the man on duty than one half hour per day.

2. The expense of battery and battery-room, and of purchasing, installing and repairing the apparatus, as also the expense attending the astronomical determination of time and the necessary telegraphy, must be borne by other parties, and must not in any way be imposed upon the signal service.

3. The Chief Signal Officer will not undertake such co-operation for the benefit of special individuals, nor unless there is satisfactory evidence that the "time signals" will be in charge of such astronomers and institutions as can guarantee a high standard of accuracy, and the uniform maintenance of their part of the time service from year to year.

4. The signal, which usually consists in dropping the "time ball," must be given automatically by telegraph from the Astronomical Observatory, which shall alone be responsible for the accuracy thereof.

5. The Chief Signal Officer will be pleased to publish such portions of the annual reports of the observatories in charge of time balls as relate to the accuracy of the signals.

6. Without presuming to prescribe, the Chief Signal Officer would suggest that the interests of navigators as well as of railroad travelers, and of the community at large, will probably be best subserved by causing the respective time balls to be dropped simultaneously throughout large sections of the country, and especially at noon of the meridians of 75° 00' and 105° or 120° of longitude west of Greenwich, in accordance with the following schedule:

Atlantic coast time balls all drop at noon on the 75th meridian; Gulf coast time balls all drop at noon on the 90th meridian; lake coast time balls all drop at noon on the 90th meridian; Mississippi Valley time balls all drop at noon on the 90th meridian; Pacific coast time balls all drop at noon on the 120th meridian.

Thus, for instance, at Washington, the time ball will be dropped at exactly five hours of Greenwich mean time, which will be eight minutes earlier than Washington mean noon, and three minutes later than New York mean noon.

7. The Chief Signal Officer will take action in reference to time balls at any station, so soon as chambers of commerce or observatories, or other local organizations communicate their desires to him.

MEMORANDUM NO. 2.—Stations at which the Signal Service can, at present, maintain "Time Balls."

Albany, N. Y.	Detroit, Mich.	Omaha, Neb.
Atlantic City, N. J.	Eastport, Me.	Oswego, N. Y.
Augusta, Ga.	East Shoreham, R.	Philadelphia, Pa.
Baltimore, Md.	I. (Block Island).	Pittsburgh, Pa.
Barnegat, N. J.	Erie, Pa.	Port Huron, Mich.
Bismarck, Dak. Ter.	Galveston, Tex.	Portland, Me.
Boston, Mass.	Indianapolis, Ind.	Rochester, N. Y.
Buffalo, N. Y.	Kitty Hawk, N. C.	San Antonio, Tex.
Cairo, Ill.	Leavenworth, Kan.	Sandusky, O.
Cape Henry, Va.	La Mesilla, N. Mex.	Sandy Hook, N. J.
Cape Hatteras, N. C.	Louisville, Ky.	San Francisco, Cal.
Charleston, S. C.	Memphis, Tenn.	Santa Fe, N. Mex.
Chicago, Ill.	Milwaukee, Wis.	Savannah, Ga.
Cincinnati, O.	Mobile, Ala.	Smithville, N. C.
Cleveland, O.	Nashville, Tenn.	St. Louis, Mo.
Del. Breakwater,	New London, Conn.	St. Paul, Minn.
Del.	New Orleans, La.	Toledo, O.
Denison, Tex.	New York, N. Y.	Washington.
Des Moines, Ia.	Norfolk, Va.	Wilmington, N. C.

The convention referred the whole matter to the Secretary, Mr. W. F. Allen, of the *Official Guide*, with instructions to report at the next regular meeting, which will be held April 12, 1882.

A Confederation of State Railroad Commissioners.

The following is a copy of a letter addressed to Maj. Campbell Wallace, of the Georgia Railroad Commission, by Mr. J. Fletcher Johnston, Chairman of the Kentucky Commission:

LEXINGTON, Ky., Oct. 15, 1881.
Major Campbell Wallace, Georgia Railroad Commissioner.

DEAR SIR: I have an inclination to address you a letter on the subject of our late Railroad Commissioners' Convention at Atlanta, and hasten to do so.

You will remember that Commissioner Pratt, of Missouri, offered a resolution, which was the first matter brought to the notice of the convention, after organization, the original draft of which I have before me, and copy as follows:

"Resolved, That a committee of five be appointed by the chair to report at an adjourned meeting of this convention on the principles on which state laws regulating rates of transportation by railroads should be based."

This resolution suggested a committee on the order of business, which was moved and carried, and the chair appointed the following committee, to wit: G. M. Woodruff, of Connecticut, chairman, J. S. Cone, of California, Samuel Barnett, of Georgia, J. F. Johnston, of Kentucky, and W. L. Bragg, of Alabama.

After the convention adjourned the chairman, Mr. Woodruff, handed me Mr. Pratt's resolution. Upon the suggestion from me that it might be drawn differently, and reported by the committee, Mr. Woodruff requested me to draw such resolutions as I thought would cover those of Mr. Pratt. In accordance I drew the following resolutions, which were reported to the convention.

"Resolved, That a committee of five commissioners be appointed by the chair to report at a future national convention of railroad commissioners, whether a general law for the regulation of railroad transportation can be so formed as

to apply to all the states, and if so, to report a draft of such a law at said meeting.

"Resolved, That said committee, in case they conclude that such a law cannot be framed as will apply to all the states alike, report whether they deem it advisable for Congress to regulate railroad transportation between the states, and if so, to report, with their reasons, a draft of a law to be submitted to Congress, regulating transportation as between the states only; leaving to the several states the regulation of rates upon railroads within their boundaries and not extending into other states."

The object of the first resolution was to test the question of regulating inter-state commerce through the investigation of a committee during the vacation of the convention, which would give ample time to make it thorough.

It was my opinion, and is still, that such a committee would report negatively on this first resolution and then come to the second resolution. It proposes the consideration of congressional intervention, and, if possible, to reach some conclusion on this difficult question which shall result in a satisfactory solution of it to all parties, and reconciling conflicting views on the question of the rights of states, necessarily involved in it to a greater or less degree. The first and second resolutions were carefully drawn in the alternative. The committee was to advise the convention whether or not it deemed congressional intervention advisable. My conviction was, upon drawing this resolution, that the committee would be forced to the conclusion after thorough investigation that Congress must in some way intervene in this matter. If so, then the committee was to report and draft such a law as would express precisely how congressional intervention should be had, subject, of course, to such revision as Congress should deem proper. As a member of the committee I felt that our committee could not, with proper delicacy and consideration, for a committee, which the first resolution contemplated, forestall or dictate to that contemplated—yet unappointed—committee, how they should perform their duty.

But it was my purpose in the furtherance of the end of these resolutions, had they prevailed and I should have been appointed upon it, and if not then to suggest to it, privately, my views of a solution of the problem, which I herewith submit to your consideration and unrestricted use. Having come to the inevitable point by the committee that the power of Congress must be involved, the "how" next arises. It was my purpose to lay before the committee this: That an act of Congress be recommended to pass constituting the chairman of the various railroad commissioners of the several states having commissions a United States commission, with a commissioner for the District of Columbia to be appointed by the President of the United States, to act as chairman, which should be vested with plenary power to settle the questions arising out of inter-state traffic on railroads, and that the decisions of such a commission, so constituted, should be without appeal. I believe that states which have no railroad commission would provide for them, if for no other purpose, for that of representation in the United States Railroad Commission, for the purpose of regulating inter-state commerce or traffic on railroads, as between themselves and other states. Thus, I believe, a satisfactory solution may be had of this vexed question without in any way conflicting with anybody's or any section's theories or convictions of states rights, and in perfect harmony with the spirit and genius of our form of government. It would correspond in every sense with the actual status of the states to the general government, leave untouched the autonomy of the states, and the harmonious relations of each to the other and all to each, and at peace with themselves in regulating their own affairs as to railroads by their commissions within their borders.

Crudely and in general, my dear sir, I submit this imperfect outline of my views on this subject, and my purposes in drawing the resolutions referred to, with expression of regret that they should have been so misconstrued and misunderstood, as to have failed of adoption by the convention. I still hope, however, should it be that I shall have occasion, that I shall be able, in some other form, to impress effectively these views, so that somehow they may finally prevail, and I should like to have your views upon my projected solution. Yours very truly, etc.,

J. FLETCHER JOHNSTON,
Chairman Railroad Commission of Kentucky.

Broken in Two, Twice.

The train, composed of 40 cars, with a coach for local passengers, and drawn by two engines, stopping at all stations to do local work, arrived at Plattsville at 7 p. m., wooded up both engines, and drew the coach down to the platform. The urbane and gentlemanly conductor looked at his watch, waited a minute and then gave the symbolic and graceful wave of his lamp which was the signal for that vast amount of property to move. It moved, at least part of it did. The engineers started too quickly, probably trying the experiment of starting the hind car first, which is just as inexcusable as the other foolish experiment of trying to make two trains pass on a single track. The link broke, leaving seven cars.

The conductor's lamp now commenced making some fearful movements, and, instead of the urbane and gentlemanly, there appeared to be a rough, excitable man stamping down the platform. The engineers never looked back. The head brakeman was busy digging the live wood-coals out of his neck. The middle brakeman had found a decent riding box-car, and was lying on his back, looking at the stars and thinking what style he would put on when he got to be passenger conductor. The hind brakeman was nestled down in the coach, buzzing some country girl. The bell cord broke, but, as is usual on 40 cars, it was no good—probably been tied to the handle of the tender (as usual), instead of the bell on the engine.

The conductor hoped to be jam-jammed if he wouldn't have another crew before he started the next trip. He rushed into the office and telegraphed to the next station: "Side track No. 16 and send one engine back here quick for the hind end; it stands right here at platform." This was done all right. Both engines came out on main line and the rear engine was soon flying back to Plattsville, leaving the front engine to stand there until her return, which would be in about 35 minutes (but she got back very much sooner). About half way to Plattsville is a down grade through a swamp, and in this hole, on their way down, three more cars had broken off, unknown to any one. It was dark and misty, but the moon was up and enabled the engineer to see something looming up. He had barely time to reverse and sing out "Jump!" which they did, head brakeman and fireman on one side, engineer on the other. The tank struck those cars hard enough to double it right up, knocked one car off the track, and then—well, the engine, with no one on her, took about the tenth of a second to make up her mind that she would go somewhere, and, by the time the engineer got to his feet, he saw his engine disappear over the hill like a streak of fire trying to beat 100 miles an hour. The engineer and fireman on the front engine were quietly chatting with the agent in the office, when they heard a rushing noise, and, looking out, saw their engine struck in the rear by lightning or something.

When the dust cleared away, where their engine had stood was all clear, but, on walking about a quarter of a mile below, they found, not this engine, but the rear engine half buried in the bank. The collision had broken her forward truck and thrown her off the track.

But where was the front engine? The concussion had opened her own throttle, with the old-fashioned thumb screw, and the debris had knocked the reverse lever ahead. She also had gone somewhere on her own hook. They ran back to the office and telegraphed to Paris: "Engine ran away from here; turn first switch and ditch her"—but she had already arrived at Paris, though in a very shaky condition. She had broken loose from her truck, which was found a total wreck afterward. Part of the frame on the foot-plate was jammed against the driving-wheel, the steam and fire almost gone, so that she was going slowly enough at Paris to allow one of the station men to get on her and stop her.

The foregoing is literally true, and no doubt will meet the eyes of some of the boys that were in this grand runaway. The trainmen were all exonerated, but they used to either count the cars in similar cases afterward, or else go back mighty carefully after the hind end since this "breaking in two, twice."—*The Railroad.*

The Block System.

Mr. Clement E. Stratton, of Saxe-Coburg street, Leicester, has contributed to the *English Mechanic* the following apparently just criticism of the block system as it is worked on most English railroads, which will be of interest to American railroad managers, some of whom soon will or should consider the question of adopting that system on their lines:

The recent accidents which have resulted either from defective systems for securing intervals between trains, or from the mistakes of signalmen in working the absolute block system, have again called serious attention to this subject.

The theory of maintaining a certain interval of space between all trains is no doubt perfect; but, unfortunately, in practice we find that the most experienced signalmen sometimes make an error in the block-working, and in many cases a collision is the result. Some persons are always ready to blame the men, and even to charge them with "manslaughter," but, in my opinion, nearly all the "mistakes" made in working the block system might be prevented by the use of proper appliances to combine the interlocking and block systems.

The engine-drivers are guided by the "out-door" signals, and if these are worked in accordance with the electric instruments, there can be little fear of collisions between following trains; but, unfortunately, there is nothing to prevent a signalman from lowering his signals for a train to proceed at a time when the instruments indicate "line blocked."

At the inquest held to inquire into the circumstances of the collision at Bow, the signalman stated that he pulled over the lever for the second train to pass on to Bow road without first looking at his instrument in the box to see whether he really had received "line clear," and that he "did so upon the impulse of the moment, to save half a minute."

The accident, and this explanation, show beyond doubt that the existing arrangements require improvement.

The Board of Trade inspectors, and also the general reports upon accidents, have upon many occasions called the attention of the companies to the systems in use upon the Metropolitan District, and London, Chatham & Dover railways, the adoption of which we are officially informed "would undoubtedly reduce the number of these mistakes to a minimum, and would, moreover, simplify the duties of the signalmen, and render them more free from anxiety in the performance of their duties."

It is to be hoped the railway companies will pay attention to the subject, because it is now admitted that the frequent errors in the working of the present Block system permit it to fail in its object of preventing collisions. It has often been urged that too much reliance is placed upon the block system, and, certainly, recent events show that this is the case, at least, in some instances. Upon many occasions when a train breaks down, or comes to a stand upon the line, the inquiries proved that the "rear guard went up to the engine to see what was wrong." This has caused many accidents, and it cannot be too strongly urged upon the rear guards of trains that their first duty when their train, from any cause, comes to a stand upon any part of the line (not protected by semaphore signals), is to at once obey the company's rules, and go back and protect the train by hand signals, precisely as if the block telegraph was not in use.

Growth of Third-Class Passenger Travel in England.

The London Railway Sheet summarizes from a letter to the *Times* by Mr. Allport, Manager of the Midland Railway, some statements of the development of passenger traffic, and especially of third-class traffic, on the English railroads. We copy from it the following:

During the past 31 years the numbers of travelers by each class have largely grown, though in very different ratios. The proportion of third-class passengers steadily increases, while the proportion of first and second-class passengers steadily diminishes. This movement, which has been going on from the first, has been much accelerated since 1872, when third-class carriages began to be run on all trains. The following figures show the percentages of the passenger traffic falling to each class in each of the years specified, viz.:

	1st.	2d.	3d.
1850.....	12.18	39.08	48.74
1871.....	9.16	22.22	68.62
1880.....	5.93	10.71	83.36

Thus the proportion of first-class passengers is diminishing rapidly—that of the second-class still more rapidly; and the third-class now represents nearly 84 per cent. of the total. Equally remarkable are the following figures, which show the percentages of receipts from the three classes for the same three years, viz.:

	Season tickets.	1st.	2d.	3d.
1850.....	No return.	31.75	41.44	26.81
1871.....	4.38	22.66	29.71	43.25
1880.....	6.30	15.98	15.04	62.68

The receipts for season tickets are not shown in separate classes, but the amount is too small to affect the general result. These figures witness to an entire revolution in railway finance. Formerly the second class was the most fruitful branch, and the first-class held the next place, while the third-class was tolerated as a kind of necessity, from which little profit was expected. Now the order is inverted; and the third-class is as prolific as the two superior classes put together. This remarkable increase of third-class traffic is partly due to encroachments on the other two classes. Many who have formerly traveled by the superior classes now

travel by the third. The change has been fostered by the railway companies in various ways. Third-class carriages are run by every train, and on many lines are, as compared with their former state, models of comfort. The soundness of this policy has been amply justified by consequences. For though Mr. Allport's tables do not show the working expenses in the different years, and thus do not enable us to compare the annual profits, it can hardly be questioned that third-class traffic can be conducted more economically than the others.

The passing of first and second-class passengers to the third-class would seem to betoken a yielding to class prejudices. Numbers who could not well afford it have traveled by first or second-class, merely to keep up appearances and to avoid the supposed contaminating contact of their inferiors. This is, probably, less the case at the present time. In India, railway traveling is said to have done more than any other agency to relax the bonds of caste; and it is possible that a similar influence may be exercised by it in this country, though the main factors of the change are probably political equality and the spread of education. But though the third-class has appropriated part of the traffic of the other classes, this fact alone is not sufficient to account for the enormous growth of third-class traffic. It is necessary, further, to conclude that there has been a vast increase of traveling on the part of the masses who form the great bulk of our population. This indicates an improved condition among the working classes. They have traveled much more than formerly; and as traveling is not a necessity of life in the same sense as food or clothing, they must have had a greater superfluity of means. From this increase of traveling among the masses there must result a feeling of solidarity, an expansion of ideas and a decay of what is known as the "parochial" spirit.

But undoubtedly the main lesson taught by Mr. Allport's tables is that in railway management the third-class must be regarded as the backbone of the passenger traffic. The proportion of third-class passengers is now more than 83 per cent.; but it certainly will not remain at that figure. Where will it stop? Does it not tend to the inevitable goal when it will swallow up the whole passenger traffic? Would it be wise to take time by the forelock, and at once merge the three classes in one? As a tentative measure, it is well worthy of the consideration of railway executives whether certain "omnibus trains" with one class should be tried. Public opinion is not at present ripe enough to go farther; but uniformity must ultimately come, unless future experience contradict the whole of the past.

RAILROAD LAW.

Standing of Lessee Corporation—State Jurisdiction.

In Washington, Oct. 31, the United States Supreme Court gave a decision in the cases of the Baltimore & Ohio Railroad Co., plaintiff in error, vs. George W. Kootz, administrator, and the same, plaintiff in error, vs. Monroe Funkhouser, administrator, in error to the Supreme Court of Appeals of Virginia. These suits were brought in a state court of Virginia, under a statute of that state, to recover from the Baltimore & Ohio Railroad Company damages for the death of sundry persons named in the respective bills, who were killed in an accident on the Washington, Virginia Midland & Great Southern Railroad, which road was at that time leased and operated by the Baltimore & Ohio Company. The plaintiff in error filed a petition for the removal of the cases from the state to the Federal courts on the ground that the Baltimore & Ohio Railroad Company was a corporation of Maryland while the complainants were all citizens of Virginia. The state court refused to permit the removal for the assigned reason that the Baltimore & Ohio Company by leasing the Virginia Midland road became a corporation of the state of Virginia and could properly be sued in the courts of that state. The Supreme Court held that the Baltimore & Ohio Railroad Company by taking a lease from the Virginia corporation, with the unconditional assent of the state of Virginia, of a railroad which could only be operated by the use in Virginia of the corporate franchise of the lessor, did not make itself a citizen of Virginia or part with any of the rights it had as a citizen of Maryland under the constitution and laws of the United States. The Baltimore & Ohio, therefore, was entitled to have these cases removed to the Federal courts, and the refusal of the state court to permit such removal was an error. The judgment of the Court of Appeals in each of the cases is reversed and the cases are remanded to the Supreme Court of Appeals of Virginia, with directions to reverse the judgments of the Circuit Court of the county and transmit the cases to that court with instructions to vacate all orders and judgments made or entered in said cases subsequent to the filing of the several petitions for removal, and proceed no further therein unless its jurisdiction be restored by the action of the Circuit Court of the United States or of this court.

Damages to Passengers—Negligence.

In the Cleveland, Columbus, Cincinnati & Indianapolis Co., appellant, against L. S. Newell, the Supreme Court of Indiana recently affirmed the decision of the lower court in favor of Newell. The appellee sued the company for injuries received while being conveyed on a passenger train. There was judgment at special term for the company which, on appeal to the general term, was reversed. The questions arise on instructions given.

The court instructed in one of the instructions that it was for the jury to determine whether the rate of speed adopted in this instance was unsafe; that the law does not fix any rate, except that it shall not be excessive or dangerous; that "whether the rate is dangerous or not will depend, to some extent, upon the safeguards adopted to prevent accident, and in determining whether the rate was unsafe on the occasion in question 'you should consider whether the velocity was greater than that which had been practiced before with the tacit consent of the community and without accident.' This portion of the instruction is erroneous. The acquiescence of the community in a dangerous rate of speed could not shield the company from liability.

It is well settled that where a passenger is injured in consequence of a train running off the track, the law raises prima facie a presumption of negligence on the part of the railway company. The injury occurred by the breaking of a rail and the burden of proof was on the railway company to show it was not negligent. An instruction which was to the effect that no presumption existed in relation to specific facts tending to constitute negligence, and that the onus of these facts was changed to the injured party, would be to rebut and destroy the general presumption of law without any explanation or proof whatever. The injured party is not required to establish facts by proof which constitute the negligence, without the general presumption is first removed.

Company's Liability for Baggage—Extra Baggage.

John A. Millard, Jr., in April, 1873, bought a ticket at St. Louis for Denison, Texas, over the Missouri, Kansas & Texas Railroad. He had with him a valise, containing his personal baggage, and two trunks filled with electrical ap-

paratus. The baggage-master at St. Louis refused to check all the luggage without extra compensation, because it exceeded the prescribed weight. Mr. Millard then informed him of the nature of the contents of the trunks and paid the charge for the overweight, and checks were given him for the valise and trunks, which were then put aboard the train. On the following day they were destroyed by fire while in the company's possession on the route. Mr. Millard brought suit in the New York Supreme Court to recover for all of his property destroyed as baggage. The court gave him judgment for the value of the valise and its contents and for the two trunks, but excluded proof of their contents on the ground that they did not come within the description of baggage.

The defendant paid the judgment, and Mr. Millard then began another action in the same court against the defendant to recover the value of the electrical apparatus contained in the trunks. The railroad company defended on the ground that there was only one contract to carry the baggage and electrical apparatus, and that the recovery in the former suit was a bar to this action. It insisted also that Mr. Millard could not recover for the loss of his trunks in one action and for their contents in another, and that the trunks were not baggage if their contents were not. The Court held that there were two distinct contracts—one to carry the baggage implied from the purchase of the ticket, and the other to carry the electrical apparatus as special baggage or freight for which the company demanded and received compensation; that the judgment in the first action was no bar to this, as Mr. Millard there sought to recover for baggage only, and if the recovery included items not covered by that term, the defendant's remedy was by appeal in that action. The Court gave Mr. Millard judgment for the full amount claimed. The Court of Appeals has sustained this judgment with costs in a decision just handed down.

THE SCRAP HEAP.

Georgia Objections to Railroads.

"Bill Arp" discourses as follows in the *Atlanta Constitution* concerning the new line from Atlanta to Rome: "The right of way through Cobb and Paulding is about all clear. Most of the people along the line gave it for nothing and threw in their welcome and good will, but every body ain't alike in this sublimity world, and some few had to be paid. But it was no big thing all told, and I think \$1,200 will cover the cost from the junction to Rockmart, and the exhibition of liberality and good sense is a compliment to the people. Some old-fashioned people don't like railroads no way you can fix 'em, and I don't blame 'em, for I do have a hankering after the good old times myself when niggers was and we used to wagon cotton to Augusta. I know we can't get along now without railroads, but I can't forget how happy we were in the olden time, when we lived plain and our wants were few and we had plenty of time. The scarcity of time troubles me now more than anything else, for I don't believe the days are as long as they used to be and there's not as many of 'em."

"One man says he to me: 'Squire, I run'd away from a railroad 30 years ago, away down in Morgan, and I hid out up here and have lived in peace, and now here comes another one of the cussed things a follerin' me up. I don't want you to come on my land. I'll get a junction agin you ef I can. I'm high enuf to mark it. I can go to Atlanta in a day, and ef there's a show in town I can go to it and see the female criffers dance round, and I can sell my cotton and buy the old woman and the gals a few tricks, and come home, and that's all the use I've got for Atlanta, for hit's a God forsaken village; and I'm like Jeff Davis in the last war. I jes want to be let alone, and if you'll git off my land I'll be obleeged to you, and me and you'll be friends."

"Another man says he to me: 'The railroad is gwine to damage me a sight. I can't paster my stock no more, and the engine will skeer my horses, and I've got a young tuile that Gollah nor Moses couldn't hold, and I'll have to sell him, for when that bulgine comes a shorten he would jump over a pine tree, and I'll have to swap him off, and maybe lose 10 or 15 dollars in the trade.'

"But the women, God bless 'em all, stand up for the railroad and want it to come, for the poor creatures are penned up at home from January to Christmas, and don't see anything but the same old road to a nabor's house and to the country church, and I don't blame 'em for wanting to set their emotions free and look out upon the winged machine that gives life and energy to the busy world."

A Modest Request.

Of all railway fiends, the pass fiend is capable of being the most supremely fiendish. General Agent D. C. Blackman, of the Union Pacific Railway, has shown us a letter recently received from an individual at Shankville, Pa., who, having no claim whatever on the road, inflicts three pages of fools' cap taffy upon the agent, and puts in a petition for passes which is colossal in its guilelessness. From his voluminous epistle we extract the following: "I will be very much obliged to you if you will send me two passes. Starting-point, Johnston, Pa.; by way of Pittsburgh to Toledo, O.; from Toledo, by L. S. & M. S. Ry., to Chicago, Ill.; from Chicago, by R. I. & P. Ry., to Omaha, Neb.; from Omaha, over Union Pacific Railway, to Cheyenne; from Cheyenne to Denver, Col. Return by way of Kansas Pacific Railway to St. Louis, Mo.; from St. Louis to Indianapolis, over Pan-Handle Route, by way of Cincinnati, O., to Pittsburgh; from Pittsburgh, to Johnston, Pa. I would like the passes good for 60 days." This young man will be heard from one of these days. He has the making of a model office-seeker in him.—*Buffalo Express*.

Protection Against Train Robbers.

The Chicago & Alton Railroad will shortly make a move in the direction of defying the Missouri train robbers by guarding their treasures. The United States Express Company has agreed to provide burglar-proof safes for the express cars, and the railroad company will remodel the cars to the extent of abolishing the doors at the end, leaving doors only at the side. The safes will be locked at Chicago and unlocked at Kansas City. The combination will be known only by the persons at each end of the route whose duty it shall be to open and close the safes. The express messenger will not be provided with a key, and therefore intimidation will be wasted upon him, as he will be powerless to aid the robbers. In addition to the above, the employees of the road will be provided with fire arms and ammunition, with instructions to use without hesitancy in case of an emergency.

Conductors.

The Ottawa (Ill.) *Journal* says: "Speaking about jokes on railroad conductors, we had two related to us a few days ago. One was on poor, patient Billy Cummings, of the Burlington line. Some Mendota boys conceived the idea of killing a man (in effigy). So one day, just before Billy pulled out from Mendota, they placed a straw man, made up in fine style, on the track. The train came up, struck the man, and passed on before it could be brought to a stand-

still. When the train stopped, the humane conductor ran back to see what assistance could be rendered and found the supposed man to be a bundle of clothes filled with straw. Red and white by turns, he rushed back to his train, and—well, he don't swear, but he gave orders that made up all last time in the next ten miles' run.

"The other story is related about a Rock Island conductor, who was rather short in stature. One day there boarded his train an unusually tall man, who was a wag of the first water. Observing the diminutive size of the conductor, he thought to have his joke. Placing his ticket under his hat-band when the ticket man came along, he quietly stood up. The man of the punch was several inches too short to secure the prize. Nothing daunted, and without a word, he turned on his heel, went to the baggage-room car and soon returned with a step-ladder, and at once climbed to the top of the passenger and secured the ticket."

Gambling on the Cars.

The New York Central Railroad Company has at last arrived at the conclusion that it is to a large degree accountable for the robberies and swindles perpetrated on its passenger trains by the itinerant rogues who pass over its rails daily. Maj. Priest, Superintendent of the Eastern Division, has posted a notice to conductors and brakemen at the Central depot in this city ordering them to stop all gambling devices under penalty of dismissal. The bulletined order holds the officers of the trains to account for robberies which may hereafter occur, the ground being taken that most of the confidence men and gamblers are well known to the conductors and brakemen. It has been hinted that, in some cases, there is collusion between the offenders and the train hands, which only increases the danger to passengers. The operators now travel as commercial men, carrying what appear to be sample cases, but really receptacles for their disguises and implements of torture. These sharks lounge about the cars, making the acquaintance of the greenhorns who have been spotted as poultry to be plucked. Every few days the report is made that a passenger has been mulcted to the tune of a hundred or two by three-card monte men, or some other species of the light-fingered gentry.—*Syracuse (N. Y.) Standard*.

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Dayton & Union..... 41	Pitts. & Lake Erie..... 28
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Delaware & Hudson Canal..... 568	Portland & Rochester..... 494
Del., Lack. & Western..... 120	Port Royal & Augusta..... 195
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Evansville & Terre Haute.

This company owns a line from Evansville, Ind., to Terre Haute, 109 miles; the Owensville Branch, from near Fort Branch to Cynthiana, 12 miles, and the Rockville Division from Terre Haute to Rockville, 23 miles, making 144 miles owned. The report is for the year ending Aug. 31.

The Owensville Branch was extended from Owensville to Cynthiana, 6 miles, the extension being completed just at the close of the year. The Rockville Division is leased to the Terre Haute & Logansport road, so that the mileage worked last year was 115 miles.

The general account, condensed, is as follows:

Stock (\$20,833 per mile).....	\$3,000,000
Bonds (\$20,833 per mile).....	3,000,000
Bills, accounts and balances.....	164,791
Balance of income account.....	154,999
Total.....	\$6,319,790
Road and equipment (\$40,882 per mile).....	\$5,814,949
Other property.....	20,282
Company's bonds on hand.....	18,000
Miscellaneous accounts.....	133,436
Materials.....	162,164
Cash.....	58,027
	275,096
	6,319,790

The bonded debt consists of \$83,000 consolidated 6 per cent. bonds, \$892,000 main line 7 per cent. bonds and \$2,078,000 new first-consolidated 6 per cent. bonds. Of the last named the company has \$18,000 on hand, besides \$30,000 held to exchange for the old consolidated bonds outstanding.

The earnings for the year were as follows:

	1880-81.	1879-80.	Inc. or Dec.	P. c.
Freight.....	\$441,685	\$472,318	D.	\$30,633 6.4
Passengers.....	301,099	184,138	I.	16,961 9.2
Mails, etc.....	45,974	41,762	I.	4,212 10.1
Rents.....	13,295	14,166	D.	871 6.1
Total.....	\$702,053	\$712,384	D.	\$10,331 1.5
Expenses.....	486,588	499,128	D.	12,540 2.5
Net earnings.....	\$215,465	\$213,256	I.	\$2,209 1.0
Gross earnings per mile.....	6,105	6,195	D.	90 1.5
Net.....	1,874	1,854	I.	20 1.0
Percent of expenses.....	69.30	70.04	D.	0.74

The decrease in earnings was more than made up by that in expenses. Though less than the preceding year, the earnings, both gross and net, show a large increase over those for 1878-79.

The payments from net earnings were as follows:

Net earnings.....	\$215,465
Interest on bonds and loans.....	\$84,813
Dividends.....	50,876
	155,689

Surplus for the year..... \$79,776

The President's report says: "There have been placed in the track during the past year 1,734 tons of steel rail—renewing 20 miles of the main line. Of this there has been charged to operating expenses an amount equivalent to an average renewal, the remainder carried into betterment account. We now have 88 miles of the main line relaid with steel. Of iron rails taken up last year, about 800 tons remained on hand, and there has been taken out of the track during the year about 1,700 tons, out of which there has been sold about 1,500 tons—530 tons used on the Owensville Extension—leaving on hand at the end of the year about 500 tons. * * *

"The extension of the Owensville Branch referred to in the report of August, 1879, has been made during the past year to Cynthiana, a distance of six miles from Owensville. This extension has been completed at a cost of \$43,915, and was opened for business on Sept. 1. This branch promises to be a valuable feeder to the main line."

Lake Erie & Western.

This company works a line from Sandusky, O., to Bloomington, Ill., 376.83 miles, with a branch from St. Mary, O., to Minster, 9.2 miles, making 386.04 miles. Of the main line the use of 1.44 miles at Sandusky is leased from the Lake Shore & Michigan Southern; 0.1 mile at Lima from the Dayton & Michigan, and 0.9 mile at Bloomington from the Indiana, Bloomington & Western, leaving 383.60 miles owned.

The company was formed by consolidation of the Sandusky & Fremont, the Lake Erie & Louisville, the Indianapolis & Sandusky, the LaFayette, Muncie & Bloomington and the LaFayette, Bloomington & Mississippi. Its first annual report is for the year ending June 30, 1881.

The equipment consists of 43 engines; 19 passenger, 6 combination and 8 baggage, mail and express cars; 1,124 box, 140 stock and 202 coal and flat cars; 1 business car.

The general account is as follows:

Stock (\$19,926 per mile).....	\$7,700,000.00
First-mortgage bonds (\$12,012 per mile).....	4,642,000.00
Income bonds (\$7,983 per mile).....	3,085,000.00
Rolling stock certificates.....	180,000.00
Accounts and balances.....	361,529.30
Total.....	\$15,968,529.30
Road and equipment.....	\$15,554,136.12
Supplies.....	104,035.09
Accounts and balances.....	230,141.64
Cash.....	61,636.81
Balance.....	18,579.64
	15,968,529.30

The rolling stock certificates are reduced by payments on the principal each year in addition to the regular interest payments.

The earnings for the year were as follows:

	1880-81.	1879-80.	Increase.	P. c.
Passengers.....	\$323,474.21	.....	.....	.....
Freight.....	979,632.29	.....	.....	.....
Mail, etc.....	108,670.40	.....	.....	.....
Total.....	\$1,411,776.90	\$1,056,560.16	\$355,216.74	33.6
Expenses.....	1,094,202.70	802,675.40	291,527.30	36.3

Net earn.....	\$317,574.20	\$253,884.76	\$63,689.44	25.1
Gross earn. per mile.....	3,764.74	.....	.....	.....
Net earn. per mile.....	846.82	.....	.....	.....
Percent of expenses.....	77.55	75.97	1.58	.....

The proportion of expenses was large on account of the low rates received on through business, the large renewals and expenditures for additions to property and the need of more equipment.

The income account was as follows:

Earnings.....	\$1,411,776.90
Interest received.....	5,000.14
Donation, city of Sandusky.....	60,000.00
Sale of Sandusky Ext. securities.....	887,590.18
Total.....	\$2,364,457.22
Debit balance, June 30, 1880.....	\$27,398.83
Operating expenses.....	1,094,202.70
Interest.....	276,885.00
Rolling stock certificates.....	40,333.32
Construction Sandusky Ext.	849,303.36
	2,287,993.21

Balance June 30, 1880..... \$76,464.01

Included in operating expenses are additions to property—chiefly new sidings, fences and real estate—which cost \$45,269.36.

The traffic for the year was as follows:

Locomotive mileage.....	1,529,315
Cost per mile run.....	16.89 cts.
Passengers carried.....	343,564
Passenger miles.....	10,832,564
Tons freight carried.....	675,592
Ton miles.....	92,168,262
Average rate:	
Per passenger per mile.....	2.980 cts.
Per ton per mile.....	0.995 "

Of the freight carried 76.28 per cent. was east-bound and 23.72 per cent. west-bound; 79.29 per cent. was local and 20.71 per cent. through freight. Rates on through business were generally very low.

The report of General Manager E. H. Waldron contains a careful description of the property. There are 45.3 miles of

the road now laid with steel; 25 miles more need to be relaid at once. There are 27.8 miles laid with rock ballast, 240.1 miles with gravel and 115.8 miles with earth; more rock ballast is needed. Right of way has been bought at Sandusky for an independent line to the water front, with room for a freight yard and docks. Ground has been given for shops at Lima and for yards at Muncie, the division station. An urgent want has been supplied by the purchase of the round-house and shops formerly owned by the Cincinnati, Indianapolis, St. Louis & Chicago Company at LaFayette. Arrangements have been made for better yard and station accommodation at several points. The company's present policy is to spend on the road all surplus over interest on first-mortgage bonds. Renewals during the year included 501 tons steel, 201 tons new iron, 1,031 tons rolled iron and 196,712 ties. Maintenance expenses have been large, owing to the generally poor condition of the line at the time of consolidation. Construction expenses have included 6.9 miles new sidings, new fencing, new shops at Lima and other important work. The equipment is generally in good order. To handle its traffic properly the company needs at least 12 new locomotives and 1,000 cars. Mr. Waldron thinks an extension from Bloomington to Peoria would add largely to the value of the road.

Boston & Albany.

The following statements from the report for the year ending Sept. 30, as made up and presented to the board, have been published. The whole line worked is 372.50 miles, of which the main line from Boston to Albany is 201.65 miles; branches owned, 66.48 miles, and branches leased or worked under contract 74.37 miles. In the preceding year the average mileage was less, including 48.50 miles worked for only two months of the year.

The traffic for the year was as follows:

	1880-81.	1879-80.	Inc. or Dec.	P. c.
Train miles	5,954,094	5,450,729	I. 503,365	9.2
Passengers carried	6,799,178	5,963,267	I. 835,911	13.4
Tons freight carried	3,593,923	3,310,539	I. 283,384	8.6
Av. receipt:				
Per passenger per mile.	2.130 cts.	2.230 cts.	D. 0.100 ct.	4.
Per ton per mile.	1.950 "	2.180 "	D. 0.230 "	10.6
Per ton per mile, local	1.600 "	1.840 "	D. 0.240 "	13.0
Per ton per mile, through	0.790 "	0.855 "	D. 0.065 "	7.6

The increase in traffic is evidently large, although, as the passenger and ton-miles are not given, there is nothing to indicate whether it was greatest in local or through business. The decrease in rates shows the effect of the cutting during the later months of the year; but there was a considerable decrease in local as well as through rates.

The earnings for the year were as follows:

	1880-81.	1879-80.	Inc. or Dec.	P. c.
Pass. dep't.	\$2,608,045	\$2,361,498	I. \$246,547	13.4
Freight dep't.	4,328,906	4,530,914	D. 202,008	4.5
Other sources.	878,334	848,706	I. 29,628	3.5
Total.	\$7,875,285	\$7,741,118	I. \$134,167	1.7
Expenses.	5,688,412	5,248,500	I. 439,912	8.4
Net earnings.	\$2,186,873	\$2,492,618	D. \$305,745	12.3
Gross earn. per mile.	21.142	23.500	D. 2.358	10.2
Net	5.871	7.561	D. 1.690	22.4
Per cent. of exp's.	72.23	67.80	I. 4.43	

Expenses were increased by the larger traffic and train-mileage, the business being done also at lower rates, and by the increased cost of labor and materials. The expenses also included part of the cost of the new passenger station in Boston.

Payments from net earnings were as follows:

Net earnings as above	\$2,186,873
Interest on funded debt	\$470,000
Rentals	75,000
Dividends, 8 per cent.	1,600,000
	2,145,000

Surplus for the year.....\$41,873

In the preceding year the surplus over interest, rentals and 8 per cent. dividends was \$347,618, from which the sum of \$300,000 was set aside as an improvement fund. The amount of interest and rentals paid was the same in both years.

The result for the year is not more unfavorable than might have been expected from the condition of through business during the later months.

Providence & Worcester.

This company owns a line from Providence, R. I., to Worcester, Mass., 43.41 miles, with 8 miles of branches owned and 15.43 miles of branches leased, or 66.84 miles worked in all. The following statements are from advance sheets of the report for the year ending Sept. 30.

The net debt (total debt less available assets) at the close of the last and the preceding fiscal year was as follows:

Sept. 30, 1880.....	\$1,308,408.14
Sept. 30, 1881.....	1,017,995.54

Decrease during the year.....\$290,412.60

The earnings for the year were as follows:

	1880-81.	1879-80.	Decrease.	P. c.
Gross earnings.....	\$1,039,671.62	\$1,069,644.21	\$29,972.59	2.8
Expenses.....	734,306.40	751,068.57	16,762.17	2.2
Net earnings.....	\$305,365.22	\$318,575.64	\$13,210.42	4.1
Gross earnings per mile.....	15,554.63	16,003.05	448.42	2.8
Net earnings per mile.....	4,583.60	4,761.24	177.64	4.1
Per cent. of expenses.....	70.62	70.21		

The ratio of expenses to earnings for the past five years is as follows: 1877, 73.66; 1878, 67.86; 1879, 61.91; 1880, 70.21; 1881, 70.62. Expenses include rentals of leased branches, \$19,080 per year.

Two dividends of 3 per cent. each, amounting to \$120,000, were paid during the year.

The balance of profit and loss was as follows:

Surplus to profit and loss to Sept. 30, 1881.....	\$303,651.75
Surplus to Sept. 30, 1880.....	261,970.24

Increase in surplus for 1881.....\$41,681.51

The surplus for this year would have been \$87,691.51 had not the interest on \$1,492,000 of bonds and notes of the company, amounting to \$46,010, due on Oct. 1, 1881, been paid Sept. 30, 1881. This made 18 months interest on the above amount chargeable to this year.

The directors call attention to the vote at the regular monthly meeting, held on March 9, whereby it was decided to increase the capital stock \$500,000 by issuing 5,000 shares of stock, offering the same to stockholders of record that day at par, in the proportion of one new share for each five shares of old stock held by them, and take great pleasure in stating that the whole amount was subscribed for, taken, and the assessments all paid in without dissatisfaction to any one of the 230 stockholders. Of the amount received for new stock there has been expended during the year and charged to the construction account, \$150,699.67, and to the equipment account, \$100,569.24, making a total addition to the property account of \$251,268.91. Work on the double track had

RAILROAD EARNINGS IN SEPTEMBER.

NAME OF ROAD.	MILEAGE.					EARNINGS.					EARNINGS PER MILE.					
	1881.	1880.	Inc.	Dec.	P. c.	1881.	1880.	Increase.	Dec.	P. c.	1881.	1880.	Inc.	Dec.	P. c.	
						\$	\$	\$	\$		\$	\$	\$	\$	\$	
Ala. Gt. Southern	290	290				70,704	62,187	8,517			13.7	244	214	30	13.7	
Atchafalaya, Top. & St. F.	1,760	1,382	398		27.4	1,147,040	866,700	340,270			42.1	652	584	68	11.6	
Baltimore & Ohio	1,467	1,467				1,540,033	1,503,313		53,310	3.3	1,052	1,089		34	3.3	
Bur., Cedar Rap. & No.	364	492	72		14.6	221,801	179,805	41,996			31.3	393	365	28	7.7	
Cairo & St. Louis	146	146				34,882	38,232		3,350	8.8	239	262		23	8.8	
Central Iowa	207	191	16		8.4	101,068	88,551	12,557			14.1	488	404	22	4.7	
Central Pacific	2,775	2,450	325		13.3	2,293,000	1,964,996	328,004			16.9	826	802	24	3.0	
Chesapeake & Ohio	435	435				247,144	247,303		159	0.1	568	569		1	0.1	
Chi. & Alton	847	840	7		0.8	768,897	767,349	1,548			0.2	908	913		5	0.5
Chi. & Eastern Ill.	232	220	12		5.5	131,905	131,905				16.6	650	644		10.5	0.5
Chi. & Great West.	3,460	3,111	789		25.4	1,645,000	1,357,677	287,323			30.8	422	404	18		4.5
Chi. & Northwestern	2,940	2,580	360		13.9	2,177,711	2,020,245	197,466			0.8	751	783		29	3.7
Chi., St. P., Minn. & O.	980	824	156		18.9	35,182	300,833	54,345			18.1	362	367		5	1.1
Cin., Ind., St. L. & Chi.	300	300				219,977	243,627		23,650	9.7	733	812		79	9.7	
Cin. & Springfield	81	81				91,598	92,554		956	1.0	1,131	1,143		12	1.0	
Cleve., Col., Cin. & Ind.	391	391				410,695	423,015		12,500	2.8	1,051	1,082		31	2.8	
Cleve., Mt. Ver. & Del.	144	157	13		8.3	40,213	41,847		1,634	3.9	279	267	12		4.5	
Col., Hock V. & Tol.	320	230	90		39.1	232,000	192,000	42,000			20.8	735	835		110	13.2
Denver & Rio Grande	963	541	422		78.1	620,642	400,990	219,652			54.8	644	741		97	13.1
Des Moines & Ft. Dodge	84	84				47,519	33,564	13,952			5.8	369	390	167		41.0
East Tenn., Va. & Ga.	900	900				296,240	282,403	13,837			4.9	329	314	15		4.9
Flint & Pere Marq.	318	318				155,235	146,003	9,232			6.3	488	459	29		6.3
Green Bay & Minn.	219	219				34,783	33,579	1,204			3.5	159	153	6		3.5
Gulf, Col. & Santa F.	290	188	102		54.3	120,196	60,325	59,871			99.3	414	321	93		29.1
Hannibal & St. Jo.	292	292				202,567	233,448		30,881	13.3	694	799		105	13.3	
Houston, E. & W. Tex.	103	72	31		43.0	15,078	9,295	5,783			63.9	146	127	19		15.0
Ill. Cent. Ill. lines.	918	918				619,699	628,725		9,026	1.4	675	685		10	1.4	
Iowa lines.	402	402				193,941	178,111	15,830			8.9	482	443	39		8.9
Ind., Bloom. & West.	402	402				193,941	183,281	12,023			6.9	486	455	31		6.9
Ind., Dec. & Springf.	153	153				52,096	44,836	7,260			17.5	344	293	51		17.5
Lake Erie & West.	362	362				126,719	109,833	16,886			15.3	350	303	47		15.3
Louisville & Nashv.	1,837	1,840	3		0.2	965,300	931,911	33,389			3.6	520	506	20		3.9
Marquette, H. & O.	88	88				134,742	104,079	30,663			29.5	1,531	1,183	348		29.5
Memphis & Charleston	292	292				90,837	104,734		13,897	13.2	311	356		45	13.2	
Memphis, Pad. & No.	115	115				20,985	19,361	1,624			8.5	182	168	14		8.5
Mil., Lake Sh. & West.	230	230	15		6.4	65,013	58,835	28,178			7.1	260	157	103		65.6
Mo., Kan. & Tex.	1,702	1,330	372		27.9	806,257	564,124	242,133			42.9	474	424	50		11.8
Mo. Pacific	1,150	950	200		21.1	709,431	554,945	154,486			27.8	617	584	33		5.7
Mobile & Ohio	506	506				209,044	184,246	24,798			13.5	413	364	49		13.5
Nash., Chatta. & St. L.	467	454	13		3.0	179,979	167,474	12,505			7.5	385	369	16		4.3
N. Y. & N. England	356	316	40		12.7	250,494	230,749	19,745			8.5	704	739		26	3.6
Norfolk & Western	438	428				212,863	209,446	3,417			1.7	497	489	8		1.7
Northern Central	326	326				400,000	390,000	10,000			7.4	1,318	1,424		106	7.4
Northern Pacific	672	672	250		34.7	529,565	330,500	199,065			48.5	504	458		40	10.0
Paducah & E'town	185	185				42,005	37,015	87,463			37.3	282	205	77		57.3
Pennsylvania	1,925	1,880	45		2.4	3,735,007	3,647,543	87,464			2.3	1,939	1,910		1	0.1
Peoria, Dec. & Evans.	248	190	58		30.5	70,226	42,720	27,506			59.3	283	225	58		23.8
Phila. & Reading	846	846				1,054,874	2,089,256		134,382	6.4	2,208	2,470		202	6.4	
St. L., Alt. & T. H.																
Main Line	195	195				121,799	136,706		14,907	10.9	625	701		76	10.9	
Belleville Line	121	121				65,590	67,580		2,080	3.1	541	559		18	3.1	
St. L., Iron Mt. & So.	685	685				690,490	671,219	19,181			2.9	1,008	980	28		2.9
St. L. & San Francisco	645	592	53		8.0	279,094	277,817	1,277			0.4	432	470		38	8.1
St. P., Minn. & Manitoba	866	656	210		32.0	485,736	274,188	211,548			77.2	561	418	143		34.2
Scioto Valley	128	100	28		28.0	51,241	31,794	19,507			61.0	400	317	83		27.0
Texas & Pacific	880	510	370		72.6	337,117	266,570	80,547			28.8	383	523		140	28.8
Tol., Delphos & Burl.	395	285	110		38.6	57,156	28,970	28,186			103.4	145	69	40		46.5
Union Pacific	3,615	3,100	515		16.6	2,844,357	2,270,179	574,178			25.7	737	732	55		7.5
Wabash, St. L. & P.	2,872	2,085	787		37.6	1,490,020	1,177,134	312,886			26.6	519	565		46	8.1
Total, 58 roads	45,280	39,470	5,810	16		31,270,769	27,717,736	3,887,882	334,849		691	702		11	1.6	
Total increase			5,810	14.7				3,553,033			12.8					



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EDITORIAL ANNOUNCEMENTS.

Addresses.—Business letters should be addressed and drafts made payable to THE RAILROAD GAZETTE. Communications for the attention of the Editors should be addressed EDITOR RAILROAD GAZETTE.

Contributions.—Subscribers and others will materially assist us in making our news accurate and complete if they will send us early information of events which take place under their observation, such as changes in railroad officers, organizations and changes of companies, the letting, progress and completion of contracts for new works or important improvements of old ones, experiments in the construction of roads and machinery and in their management, particulars as to the business of railroads, and suggestions as to its improvement. Discussions of subjects pertaining to ALL DEPARTMENTS of railroad business by men practically acquainted with them are especially desired. Officers will oblige us by forwarding early copies of notices of meetings, elections, appointments, and especially annual reports, some notice of all of which will be published.

Advertisements.—We wish it distinctly understood that we will entertain no proposition to publish anything in this journal for pay, EXCEPT IN THE ADVERTISING COLUMNS. We give in our editorial columns OUR OWN opinions, and those only, and in our news columns present only such matter as we consider interesting and important to our readers. Those who wish to recommend their inventions, machinery, supplies, financial schemes, etc., to our readers can do so fully in our advertising columns, but it is useless to ask us to recommend them editorially, either for money or in consideration of advertising patronage.

FAST TRAINS.

Again we have fast trains between New York and Chicago. At the late session of the time convention the Pennsylvania Railroad Company announced that it would not be bound by any arrangements then made so long as the demoralization of passenger rates continued. It had been for some time rumored that it would put on a fast train, and Saturday announcement was made that one would begin to run Monday, making the time between New York and Chicago (912 miles by this road), in 26 hours, which gives an average speed of 35 miles an hour. The fast train is a strictly limited one. It makes stops at only five places between the termini and stops nowhere for meals. It is also properly a first-class train. It has only parlor, sleeping and dining-cars, and every passenger must pay, in addition to the regular fare, for a whole berth in a sleeping car, which gives him a seat for two by day. The dining-cars are on the Western plan, not restaurant cars. Table d'hôte meals are served at the fixed price of 75 cents each. The extra fare, which includes payment for the sleeping-car berth, is \$8 from New York to Chicago, the price of the berth on other trains being \$5. This company's regular fare being \$14, this makes the cost \$22 for fare and berth; while the regular rates that prevailed for some years were \$20 for a limited ticket and \$5 for a berth; and the cost is \$3 more than by the other trains on this road.

The new train leaves New York at 8 a. m., and reaches Chicago at 9:30 a. m. the next day. Returning it leaves Chicago at 3:30 p. m., and reaches New York at 6:30 p. m. the next day. The difference in time is 55 minutes.

The fast train that has been running two or three years, and for which the new fast train is substituted, left Chicago at the same hour (3:30 p. m.), but arrived at New York three hours later (at 9:30 p. m.); and there was no corresponding west-bound train, the fastest in that direction taking about 35½ hours for the run. Thus we have a reduction in the east-bound time of only three hours, but in the west-bound of not less than 9½ hours.

The faster running (compared with the old 29-hour Chicago-New York train) is made chiefly west of Pittsburgh. The 29-hour train ran at the average rate of 30 miles an hour from Chicago to Pittsburgh, but mended its paces and ran 33½ miles an hour from Pittsburgh to New York. The new train runs 35½ miles an hour from Chicago to Pittsburgh, and only 34½ from Pittsburgh to New York. The western road has fewer heavy grades and sharp curves, but formerly it was in less perfect condition than the Pennsylvania main line, and had so little double track that there was much more danger of delay from or to the immense freight traffic. The considerable increase of speed on this road indicates that it has been made better able to convey a heavy mixed traffic.

The speed of this train has been equaled or surpassed on several shorter routes for many years. Indeed, about 1856 there was a faster train between New

York and Albany, as there are trains between those places now which run 36 miles an hour. What makes the new train remarkable is that it should make such speed for so great a distance.

But even in that particular it is but a slight improvement on what has been done before. People have hardly forgotten yet the fast mail train that ran between New York and Chicago over the New York Central and the Lake Shore in 1875 and afterwards. The schedule time of this train was 27¼ hours, and it made it usually, and made many more stops than the new Pennsylvania train. This route, too, is 968 miles long, and the average speed per hour was 35½ miles per hour.

But this mail train did not run fast west of Cleveland, as there was no need of its doing so. Up to that place important mail connections were made, but few further west, where the run was made by night, and where the road at that time not so good as further east. The average speed from New York to Buffalo was 41 miles an hour; from Buffalo to Cleveland, 37½; from Cleveland to Chicago 30 miles an hour. There were 70 minutes consumed in stops on the time-table, besides which there were five crossing stops. If the speed from New York to Cleveland had been kept up from Cleveland to Chicago (which is the straightest part of the road), the distance would have been run in 24½ instead of 27 hours. It is, we believe, perfectly practicable to do this. The Lake Shore, indeed, is probably capable of making as good time as the New York Central, and with the fast mail time between New York and Buffalo, the distance between New York and Chicago would be passed in 21½ hours.

The fast mail carried no passengers and was very light; but the fast passenger will probably carry no mails, and will be kept light by fares higher than the ordinary rates. It must be a small train to make the speed, and as the cost must be paid by a smaller number of passengers, it is proper that they should pay a higher fare. It is questionable, however, whether the train is put on because likely to be permanently advantageous. Probably it is looked upon as likely to be an advantage in competing with rival roads at a time when competition by reducing fares has been carried to the uttermost. The Pennsylvania has recently provided itself with a special equipage of locomotives built for fast speed—the "Class K" engine which we illustrated last week and this—and the new train will give these locomotives a chance to show what they are worth in hard service. The Vanderbilt roads have, we believe, substantially the same type of passenger engines as for several years past; many of them are famous for making good time. The New York Central has much fewer steep grades and sharp curves than the Pennsylvania, but its route is 50 miles the longer. The Pennsylvania this year has been straightening its line in some places, but we do not know whether the work has progressed far enough to be of much advantage at present. In view of the success of its fast train between New York and Philadelphia, which for a year has run 88½ miles in 110 minutes, it would seem possible for it to improve upon the time of 26 hours from New York to Chicago. And it would probably be of some advantage to shorten it, so as to make it possible to start from Jersey City later than 8 o'clock in the morning, which is inconveniently early for New Yorkers. Perhaps when the New York Central matches this train, or something more, as it proposes to do next week, the Pennsylvania will shorten the time, and then we may see which line can make the best speed. In view of English experience, we can hardly say that a dangerous rate of speed is as yet approached. Considerable time is saved by eliminating stops, and the average after all is nothing uncommon on shorter routes. But really great speed will be more dangerous here than in England, because of the great number of level crossings in this country. In England the engine-man is almost absolutely certain that there will be no stray cow on his track, or wagon on the rails at a crossing. The danger from such obstructions increases with the speed. A derailment while running 60 miles an hour is something fearful to think of.

The advantage of the fast train to passengers whose journey is only between New York and Chicago is not considerable—not enough to justify it, we believe. A time of 36 hours to such passengers is about as good as a shorter time. The difference is that in one case you spend two nights in a sleeping car, and in the other only one. If you start this evening you will arrive in Chicago as early as by the fast train which leaves to-morrow at eight o'clock. But for passengers to or from points west of Chicago the advantage may be considerable. Some of them may save a whole day by it, and the number of these passengers has become large and is increasing constantly. Not all of them, however, will

be able to pay an extra price for the saving, and so long as the other roads carry for \$9.25, and give a berth for \$5, the fast train will not be likely to get many of these passengers at \$22. But the other fares continuing very low, it may very likely get a good number of people who prefer to keep out of a crowd, and away from trains that are likely to be overloaded, and consequently behind time. In a word, the prospects are, we should say, that the new train will justify itself rather as a first-class train than as a fast train; that is, its exclusiveness rather than its speed will attract patronage.

THE FONTAINE FALLACY.

In the *Railroad Gazette* of Feb. 25, of this year, we published an engraving of the first engine built by Mr. Fontaine on his peculiar system. Its merits were afterward set forth by Mr. John Orton in letters published in our issues of June 3 and July 15. At the time they were published we dissented from some of the reasoning and conclusions of the author. Since then another engine on this plan has been finished, and is now on the Pennsylvania Railroad for trial, and an engraving of a third one, for freight service, with four coupled wheels, was published in the *Scientific American Supplement* dated Nov. 5, with a letter from Mr. Orton, which is published on another page.

The letter explains the theory on which "the superiority of the Fontaine engine is based," and inasmuch as the engine has attracted a great deal of attention, especially from a class of people of less distinction as engineers than the author of the letter referred to may justly claim, it has seemed proper that a paper occupying the relations of the *Railroad Gazette* to such subjects should give its reasons for denying that the plan of engine possesses any such advantages as are claimed for it, and for dissenting from the views of a person of the reputation of the author of the letter referred to.

Before doing so some warning and excuses are due to our readers for devoting so much space to an elucidation of the simplest elementary principles of mechanics. Those who are firm in the conviction that *what is gained in speed is lost in power* are advised not to read any further, as what follows is intended for the believers in a "principle of the re-enforcement of power" which somehow is thought to modify the above old-fashioned law.

The nature of some of the claims made for the Fontaine engine will appear from the following extract from Mr. Orton's letter. In it the writer says:

"As the applied or propelling force operates at 63 in. from the rails, while the resisting or opposite force acts at 35 in. from the same point, there will be a re-enforcement or theoretical difference of power equal to nearly eighty per cent. in favor of the Fontaine arrangement."

It is not quite plain what is meant by a re-enforcement of the power, but unless it implies that there is an increase in power without a corresponding reduction in speed, the statement is meaningless. If this is really its import, then it seems remarkable that it should now be necessary to controvert it. That it is necessary is shown by the fact that the *Scientific American* of Nov. 5 has an editorial warmly commending the system. In this article it says:

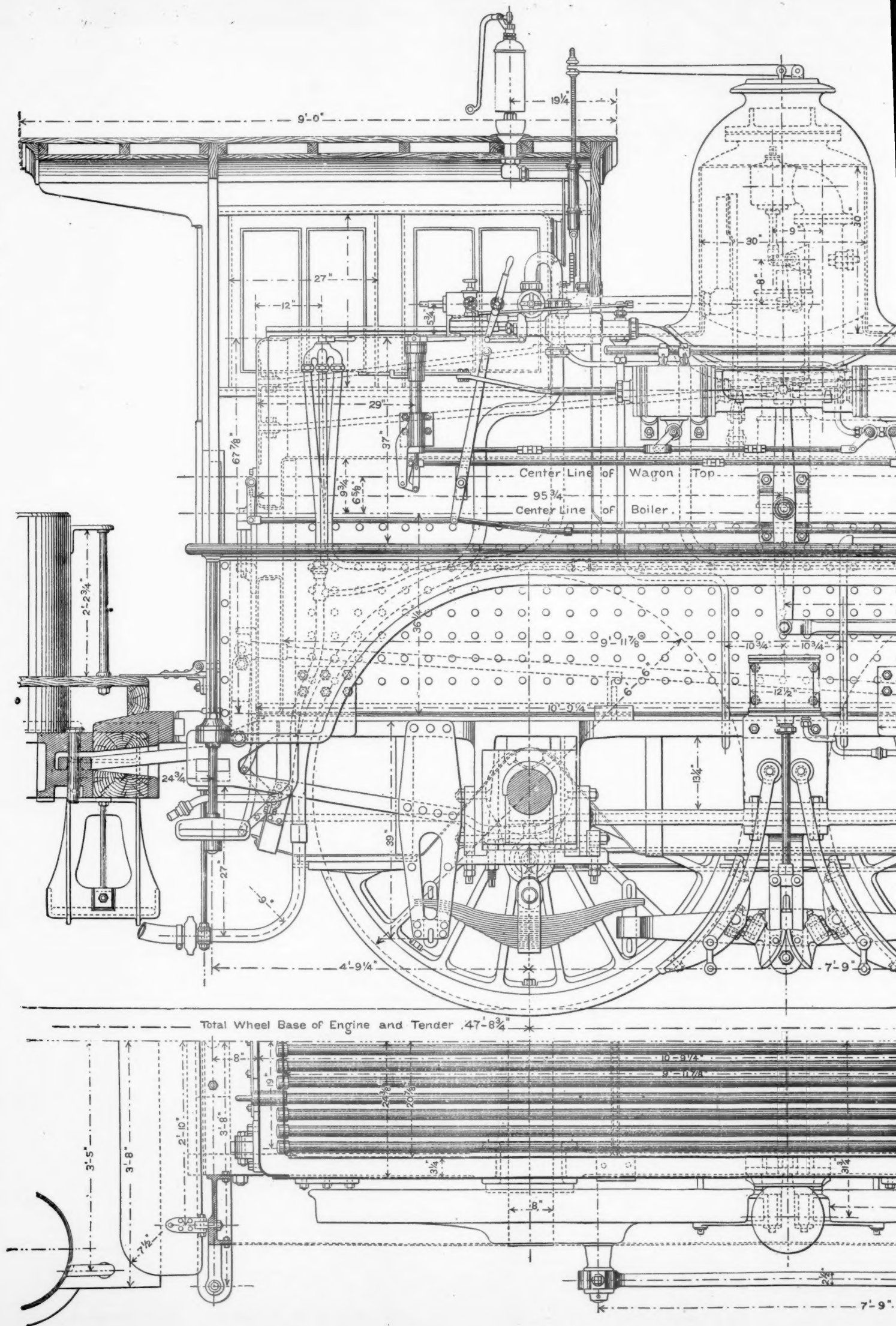
"The high professional standing of Mr. Orton gives weight to the judgment which he expresses—a judgment based on a critical study of the theory of the inventor as well as the practical behavior of the engine."

"From the evidence thus furnished it seems to be abundantly established that the Fontaine locomotive marks a long stride forward in the direction of speed and economy in railway service."

"By a bold and ingenious change in the manner of applying the power through auxiliary drivers, a large increase of speed is obtained with a given size of driving-wheel without increasing the number of piston strokes or the amount of fuel consumed. Or, the speed of the train being constant, the improved method of applying the power and the more complete development of the working force of the steam enable the engine to haul a much heavier load than is possible with the engines in common use. Theoretically the advantage gained is nearly 80 per cent. in speed or traction above the best performance of engines of the same size built in the prevailing style—a practical gain of 80 per cent. is deemed well within the bounds of demonstration."

"The influence upon commercial and social life certain to flow from an improvement like this—which greatly cheapens the cost of power for hauling freight and passengers—it is impossible to estimate. Social and commercial activity increases not in simple but in compound ratio with each step in the mastery of time and space, and in every instance hitherto the results of such improvements have surpassed expectation."

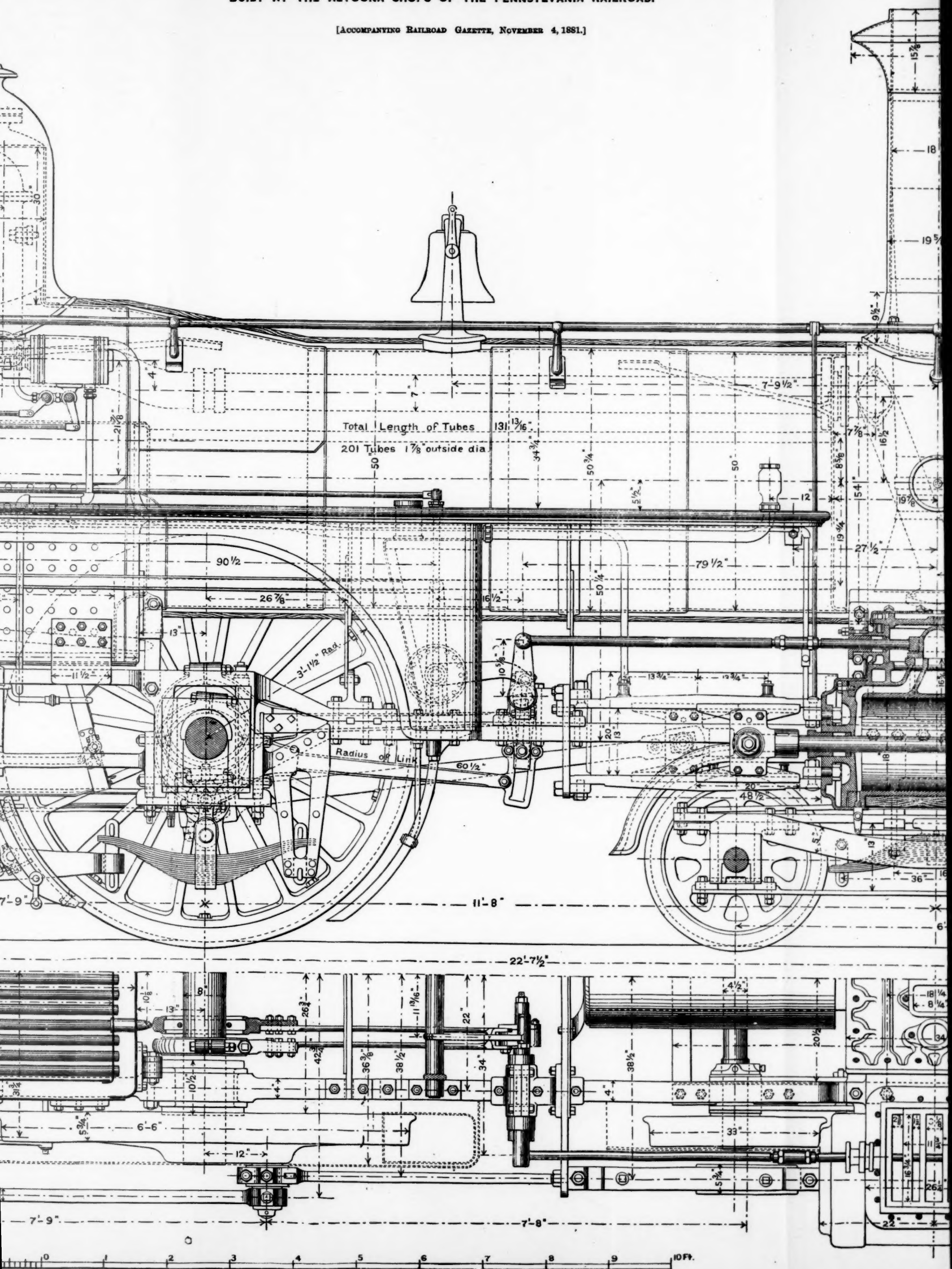
It is not difficult to find railroad promoters on Wall street who are enthusiastic believers in the system which the *Scientific American* commends so highly, and some of that class of engineers are inclined to believe that Mr. Fontaine has made a "corner" on the law of gravitation and the conservation of energy, and probably if his invention were now materialized into the form of a stock company, the shares would sell as readily those of the Keeley Motor Company did some time ago.

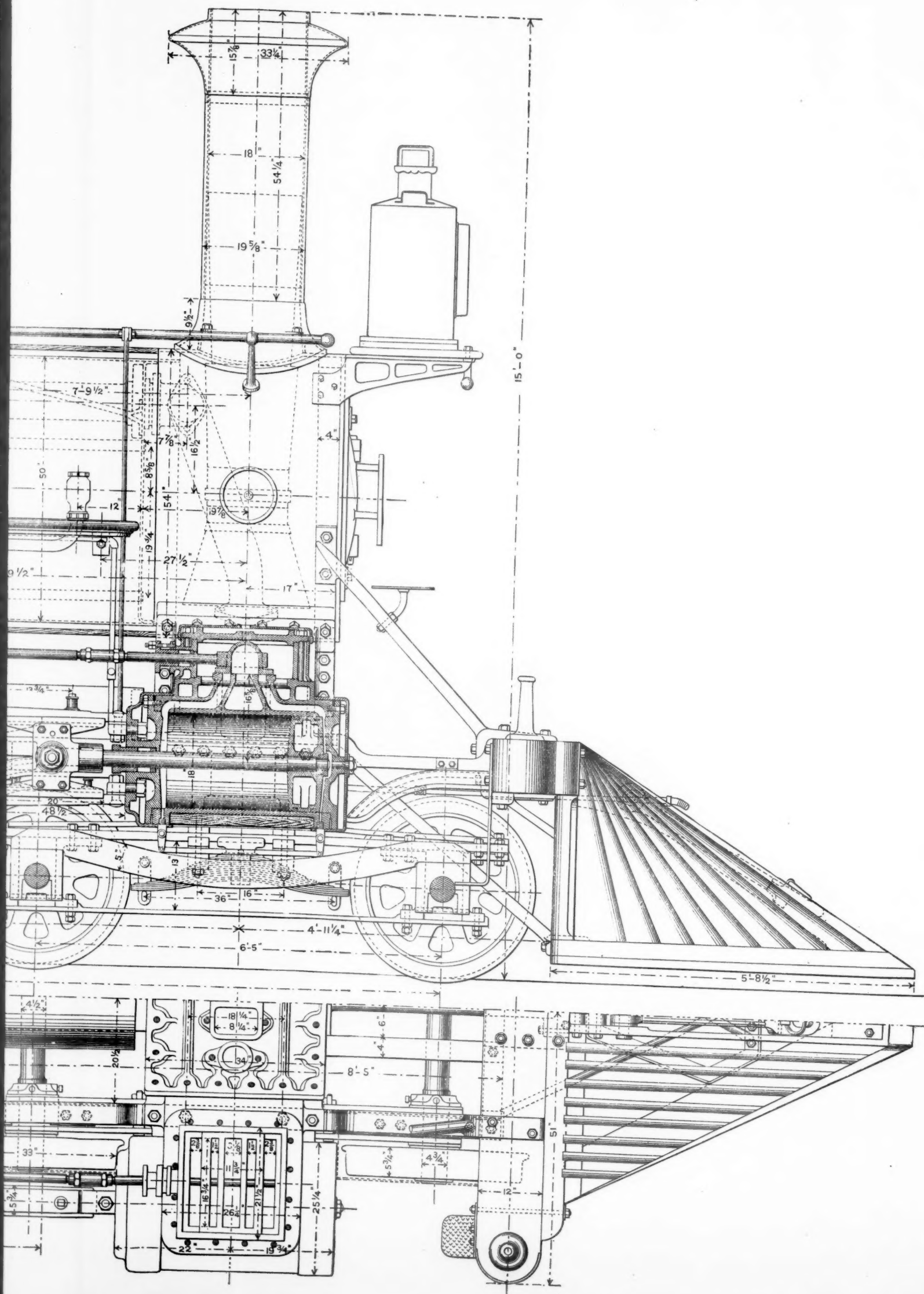


FAST PASSENGER LOCOMOTIVE.

BUILT AT THE ALTOONA SHOPS OF THE PENNSYLVANIA RAILROAD.

[ACCOMPANYING RAILROAD GAZETTE, NOVEMBER 4, 1881.]





Fortunately the vague theoretical advantages of this new system which were advanced at first have been put into more definite form by Mr. Orton. It is therefore possible to analyze them and discover wherein, if at all, they are erroneous.

In that letter the author says:

"Paradoxical though it may appear, the 'Fontaine' is, in reality, a stationary engine, so far as its machinery is concerned, but by the interposition of the auxiliary wheels effecting a junction with the drivers and the rails, the engine becomes at once a locomotive or moving force."

Again he says:

"The principle involved will perhaps be more readily understood from the following illustration. Let us assume that the driving and auxiliary wheels are exactly of equal diameters, and that the driving wheels are made to revolve. The effect of this would be that in one revolution of the drivers the lower wheels also would make one revolution, and travel on the rails a distance equal to the circumference of the wheels; and if a train of cars had been attached to the axle of the lower wheels, the train would also be hauled an equal distance. Now, the propelling force applied by the drivers at the top of the lower wheels, in consequence of the leverage, there being twice that of the resisting force at the axle, would pull double the weight that evidently could be done were the same force applied in a direct horizontal line with the axle of the lower wheels."

With reference to the first statement it may be said that the Fontaine is neither apparently, nor in reality or theory, a stationary engine. The cylinders, friction-wheels, etc., all move with the engine, and the reaction of the steam pressure in the cylinders is resisted by the engine frames, which would not be the case if the engine were stationary. Without explaining this further, the meaning of the second statement quoted above will first be illustrated. It is evidently intended to convey the idea that if an engine were built with friction wheels equal in diameter to the rolling driving-wheels, as indicated in fig. 5, it would pull twice as much as a simple engine of the ordinary type, shown by figs. 3 and 4, in which the cylinders are connected to the driving-wheels, for the reason that by the former the power is exerted at the top of the lower wheel and acts practically on a lever *abc* whose fulcrum is at *c* and load at *b*, midway between the fulcrum and power.

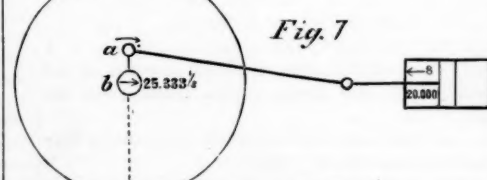
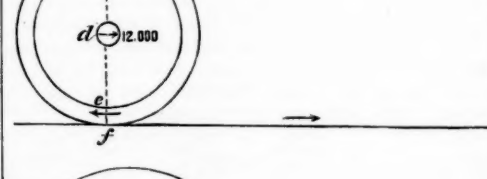
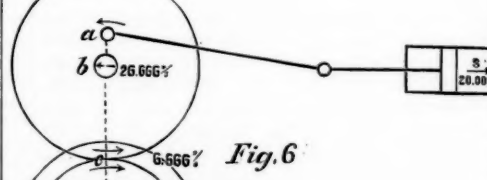
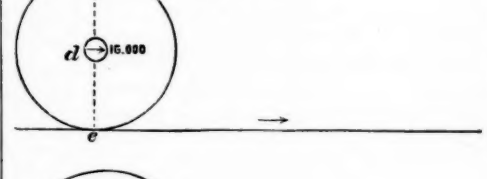
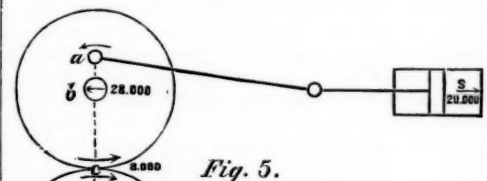
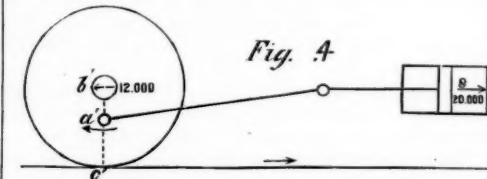
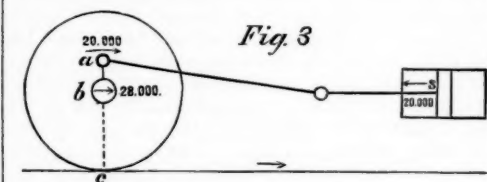
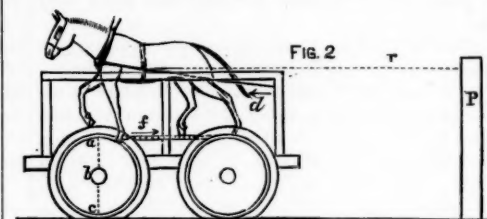
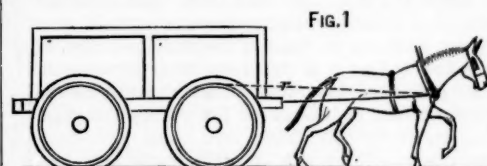
To illustrate this principle let us substitute a mule for a steam engine, and suppose him pulling a car directly in the one case, as in fig. 1, and then working on an endless railroad as in fig. 2. If Mr. Orton's theory is correct, the mule would pull twice as much in the latter case as he would in the former, because his "propelling force is applied at the top of the wheels" instead of "in a direct horizontal line," as in fig. 1. Let us see how this is. In order that the mule may exert any power on the endless railroad, he must have a fulcrum to act against, and must therefore be harnessed to some part of the car, as at *d*. If he then exerts a force on the railroad equal to 100 lbs. in the direction of the dart *f*, undoubtedly the propelling force at the axle *p* is double that amount, or 200 lbs. But while this is the case, it must be remembered that he is pulling at *d* in the opposite direction with a force equal to that exerted at *f*, and therefore the actual propelling force with which the car is moved is equal to the difference between the forces exerted at *p* and at *d*, or $200 - 100 = 100$ lbs.

If our mule were a stationary engine, as Mr. Orton assumes the Fontaine engine to be—that is, if, instead of being harnessed to a part of the car, which is movable, the animal pulled against a stationary object, as a post *P*, then the force exerted to move the car would be twice as great as it would be in the former case. Or if in fig. 1 the beast pulled on a rope *r*, indicated by dotted lines, wound around the periphery of the wheel, the same result would follow; but in both these cases, it must be observed, the mule would be obliged to walk *twice as far*, to pull the car a given distance, as he would when working as represented in the engravings.

The fallacy of the reasoning about the Fontaine engine may, however, be demonstrated by a little consideration of the elementary principles which control the movement and propelling forces in a locomotive. Let it be supposed that figs. 3 and 4 represent a 5 ft. driving-wheel and a 16 x 24 in. cylinder, with the position and crank-pin in the two pistons at mid-stroke. Let it be supposed that we have a total steam pressure of 20,000 lbs. on the piston, and that the crank-pin is moving in the direction of the dart *a*. In fig. 3 if there is a pressure of 20,000 lbs. on the piston to push it and the crank-pin forward, there will also be an equal pressure, *s*, against the cylinder-head to push it and the whole engine back. The force at the crank-pin acts through a lever, *abc*, of which *c* is the fulcrum. As *ab* = 1 foot and *bc* = $2\frac{1}{2}$ ft., the whole length of this lever is therefore $3\frac{1}{2}$ ft. The force exerted at the axle *b* to move the engine forward is therefore $\frac{20,000 \times 3\frac{1}{2}}{2\frac{1}{2}} = 28,000$, and the propelling force of the locomotive is equal to the

difference between that exerted at the axle and on the cylinder-head, or $28,000 - 20,000 = 8,000$ lbs.

When the crank-pin is in the position represented in fig. 4, then we have a force *s* of 20,000 lbs. acting against the front cylinder-head to push it forward, and against the piston and crank-pin to push them back. This, in turn, acts through a lever, *c'a'b'*, to push the axle



b' backward. As this lever is $2\frac{1}{2}$ ft. long, and *a'c'*, or the distance from the fulcrum to the power, is $1\frac{1}{2}$ ft., the force exerted at *b'* is equal to $\frac{20,000 \times 1\frac{1}{2}}{2\frac{1}{2}} = 12,000$ lbs., and the propelling force acting on the locomotive is again equal to the difference of the two forces acting against the cylinder-head and the axle, or $20,000 - 12,000 = 8,000$ lbs.

If now we take the case of an engine (fig. 5) of the

Fontaine plan, of the same dimensions and with friction and driving-wheels of the same size, or each 5 ft., it will be found that when the crank-pin is in the position shown in the figure we have a forward pressure of 20,000 lbs., which we will designate +, acting against the front cylinder head, a backward pressure of the upper axle of 28,000 lbs., which will be designated —. The force exerted at *c*, the frictional point of contact of the two wheels, acts through the lever *abc* and is

therefore equal to $\frac{20,000 \times 5}{2\frac{1}{2}} = 8,000$ lbs. This force is again exerted through the lever *cde*, of which *c* is the fulcrum, and consequently the pressure at *d* is equal to $\frac{8,000 \times 5}{2\frac{1}{2}} = +16,000$. We therefore have $+20,000 + 16,000 - 28,000 = +8,000$, or, in other words, we have a force of 8,000 lbs., as we had before, to push the engine forward. A similar calculation will give a similar result when the crank-pin is in the lower quarter.

If the lower friction wheels are smaller than the driving or rolling wheels, as shown in fig. 6, the only difference will be that the lever *cdf* will have arms of unequal lengths, and the pressure against the lower axle to push the engine forward will be less than it would be if the lower friction and driving-wheels were of equal size. In the Fontaine engine the upper friction wheels are of 72 in. diameter, the lower ones 56 in. and the driving or rolling wheels 70 in. Assuming the same pressure on the piston as before, we would have: $20,000 \times 48$

$\frac{36}{36} = 26,666\frac{2}{3}$ lbs. as the backward or — pressure of the upper axle, and $\frac{20,000 \times 12}{36} = 6,666\frac{2}{3}$ lbs. as the force exerted at *c*, the point of contact of the two friction wheels, and $\frac{6,666\frac{2}{3} \times 63}{35} = 12,000$ lbs. as

the forward or + pressure of the lower axle. Therefore $20,000 + 12,000 - 26,666\frac{2}{3} = 5,333\frac{1}{3}$ lbs. is the force which pushes the engine forward.

This system of gearing, Mr. Orton says, "will have the effect of increasing the progressive speed of the engine on the rails to that of an ordinary engine with driving-wheels 90 in. or $7\frac{1}{2}$ ft. in diameter." A calculation will show, however, that the re-enforcement of power which is claimed for the Fontaine system is purely imaginary. Taking fig. 7 as representing an engine with 90 in. wheels, and the same cylinder pressure as before, we have $20,000 \times 57 = 25,333\frac{1}{3}$ lbs. as the force exerted by the axle to push the engine forward, and as the pressure on the cylinder-head pushes backward, we have $25,333\frac{1}{3} - 20,000 = 5,333\frac{1}{3}$ lbs. as the propelling force, or just the same as in the case of the Fontaine engine. This force, of course, is not exerted through the whole revolution of the crank-pin, and even at mid stroke some deduction must be made for the effect of the angularity of the connecting-rod and for friction, with the difference that the latter will be considerably greater with the Fontaine gearing than with a single pair of wheels as shown in fig. 7.

There is, though, a much simpler method of demonstration that there is no "re-enforcement of power." If there is an average pressure of 20,000 lbs. on each of two pistons, having two ft. stroke, that force will be exerted through a distance of four feet in each cylinder. Therefore the amount of work done or energy exerted measured in foot-pounds is $20,000 \times 4 \times 2 = 160,000$. Now it is a principle of mechanics, as absolutely true as the law of gravitation, that *what we gain in speed we lose in power*. In other words, if we extend the distance through which the pressure of 40,000 lbs. on the piston is exerted, that pressure is diminished in inverse proportion. The force, it might be said, is thus spread out thinner. In one revolution of the upper friction wheels the Fontaine engine not only moves a distance equal to the circumference of those wheels, 226.1 in., but that distance is multiplied by the difference in diameters of the lower friction wheels and the driving or rolling wheels.

$\frac{226.1 \times 70}{56}$
Therefore, the distance the engine moves is $\frac{226.1 \times 70}{56} = 282.6$ in. The tractive or propelling force, therefore, exerted by the 40,000 lbs. pressure on the two pistons is equal to $\frac{40,000 \times 48}{282.6} = 6,794$ lbs. But if $7\frac{1}{2}$ ft. or 90 in. driving-wheels are used, the engine will move a distance equal to their circumference during one revolution of the cranks. As this is also 282.6 in., or exactly equal to the distance that the engine is moved by the Fontaine gearing, exactly the same calculation

for the tractive force of the one engine may be made for the other with identical results.

It should perhaps be explained that in the latter calculation the average tractive force during the whole revolution due to both cylinders is given, and in the other only the tractive force of one cylinder at mid stroke.

Another advantage claimed for this engine is that smaller driving or rolling wheels may be used to get a high speed, and thus the boiler and centre of gravity of the engine may be lower than they would be if $7\frac{1}{2}$ ft. wheels were used. The difference in height of the centre of the axle with 70 and 90 in. wheels is 10 in. As an offset to this the Fontaine engine has all the weight of the upper friction wheels, their frames, boxes and other connections above the centre of the boiler, so that it is questionable whether the centre of gravity of this engine is not higher than that of one with 90-in. wheels.

It should be said that a system of levers is used for increasing the friction of the wheels in contact. The construction of these is not shown very clearly in the engravings, but it seems probable that one effect of their action will be to throw a larger proportion of the weight of the engine on the driving-wheels than is ordinarily carried there, and thus increase the pulling capacity of the engine. This feature can be, and has been, applied to ordinary engines, and if it is an advantage is one not peculiar to the Fontaine system. It is hoped that the officers of the Pennsylvania Railroad, in the tests which it is said they are making, will get the weight on the driving-wheels when the system of levers is in operation.

Unfortunately the inventor of the system seems to sincerely believe that he is able to get what in the West they call a "twist" on the action of mechanical forces, and that he gets more power out of the cylinders of his engine than ever goes into them. Under this mistake he is spending his own money, which is unwise; but what is worse is that the oldest and most widely circulated scientific paper in this country, by corroborating the erroneous theories which have been advanced concerning the engine, may induce other people to spend money on a device which the first and fundamental principles of mechanics should show to be irrational. The invention belongs to that kind that seems to be especially tempting to a class of people who may be designated as mercantile engineers, and what with the theory of the "re-enforcement of power" and the authority of the *Scientific American*, they are quite certain to wax eloquent over its "capacity of adding millions to the value and vastly to the capacity of our railway systems."

SEPTEMBER EARNINGS.

September earnings are reported in our table for no less than 58 railroads—the largest number that ever reported, we believe. These 58 roads had this year 45,280 miles of railroad, which is but little less than half of the total mileage now in operation in the country, and 5,810 miles, or 14.7 per cent., more than they worked in September last year. With this increase of mileage the roads earned 12.8 per cent. more money, their average earnings per mile of road having decreased from \$702 to \$691, or 1.6 per cent., against an increase in earnings per mile of 6.9 per cent. in August, 4.8 in July, 13.4 per cent. in June, 3.5 in May, 2.9 per cent. in April, and decreases in the earlier months of this year, amounting for the three months to 7.7 per cent. Last year 55 roads reporting for September showed an increase of 3.6 per cent. in earnings per mile over 1879.

The report thus shows an interruption to the increases of the five months previous, but still, considering the very large new mileage and the large earnings last year, the earnings were very satisfactory this year.

Of the 58 roads, 14 show some decrease in total earnings, and no less than 23 a decrease in earnings per mile. None of the decreases are very large, however. Nor are many of the increases large; the largest in earnings per mile are 41 per cent. on the Des Moines & Fort Dodge, 29 on the Gulf, Colorado & Santa Fe, 29½ on the Marquette, Houghton & Ontonagon, 65½ on the Milwaukee, Lake Shore & Western, 37¼ on the Paducah & Elizabethtown, 25¼ on the Peoria, Decatur & Evansville, 34 on the St. Paul, Minneapolis & Manitoba, 27 on the Scioto Valley and 46½ on the Toledo, Delphos & Burlington. All these roads with large percentages of increase, except the Marquette line, have still small earnings per mile.

The roads with a considerable trunk-line traffic generally have smaller earnings this year, though not much smaller. This is true of the Baltimore & Ohio (which has not reported before) and of the Cincinnati & Springfield, the Cleveland, Columbus, Cincinnati &

Indianapolis, the Chesapeake & Ohio, of the Northern Central (which until recently has shown very large gains), and of the St. Louis, Alton & Terre Haute Main Line; but is not true of the Pennsylvania. There can be no question, however, but that gross earnings from through trunk-line traffic, and still more net earnings, were much less this year than last. The eastward movement of freight, taking the lines as a whole, was no larger, and the increase of about 40 per cent. in west-bound freight and the very large increase in through passengers in both directions were much more than neutralized by the much lower rates this year. The gains, where there have been gains, have been wholly due to the growth of other traffic, which in most parts of the country has doubtless been very large.

As usual a very large proportion of the mileage is in the district west of Lake Michigan, and especially a very large part of the new road. We count 16 roads there, the southernmost being the Chicago & Alton and the Hannibal & St. Joseph. Including the Union Pacific, these had 17,288 miles of road this year, an increase of 2,402 miles, or 16 per cent., over last year. These roads earned this year \$10,447,150, which is nearly 19 per cent. more than their last year's earnings in September, and their average earnings per mile increased from \$589 to \$604 per mile, or 2.6 per cent. The increase on these Western roads was nearly one half of the total increase. If we take out the Union Pacific from this group, in which case it will be limited to roads north and east of the Missouri and west of Lake Michigan, there will scarcely be any change in the proportions. These Northwestern roads are more prosperous than the average. All the roads in it, except the Hannibal & St. Joseph and the Illinois lines of the Illinois Central, show an increase this year.

Now, if we take another group south of these and west of the Mississippi—a Southwestern group to set against the above Northwestern group—including all the Texas lines that report, we find, including the far western Atchison, Topeka & Santa Fe and the Denver & Rio Grande, nine roads with this year a total of 8,178 miles of road, and an increase over last year of 1,928 miles, or 31 per cent. These roads carried this year \$4,725,132, which is about 30 per cent. more than last year, and their average earnings per mile of road were \$578 both years. The Atchison and the Denver roads have in many respects a different traffic from the others of the group, but the direction of the changes will be about the same if they are omitted. If we take both these groups from the total, and present them together as the Western roads, and all the rest reporting as the Eastern roads, we shall have:

Western roads:	1881.	1880.	Increase.	P. c.
Miles.....	25,406	21,136	330	20.5
Earnings.....	\$15,172,282	\$12,377,366	\$2,794,916	22.6
Earnings per mile.....	596	586	10	1.7
Eastern roads:				
Miles.....	19,714	18,334	1,380	7.5
Earnings.....	\$10,098,487	\$15,340,370	\$755,117	4.9
Earnings per mile.....	516	837	Dec. 21	2.5

There are 25 roads in the Western and 33 in the Eastern groups above. The latter may well be subdivided into a Northern and Southern group. There are 10 Southern roads east of the Mississippi, which have 5,455 miles of road this year, and only 10 miles more than last year. In the aggregate these earned \$2,345,191 this year, against \$2,246,980 last year, and their average earnings per mile increased from \$413 to \$430, or 4 per cent. This leaves us a Northern group, wholly north of the Potomac and east of the Mississippi, with the exception of the lines of the Wabash that are west of the Mississippi, but not including the roads to Chicago and Lake Michigan, east of the Mississippi. This group has the following:

	1881.	1880.	Increase.	P. c.
Miles.....	11,484	10,439	1,045	10.0
Earnings.....	\$11,400,296	\$11,128,394	\$331,902	3.0
Earn. per mile.....	998	1,066	68	6.4

Thus we find that the Northern roads east of Chicago and St. Louis alone show a decrease in earnings per mile; the Southern roads have an increase of 4 per cent., the Northwestern roads an increase of 2.6 per cent., while the Southwestern roads show no change.

Below we give a table of earnings per mile in September for six successive years:

	1876.	1877.	1878.	1879.	1880.	1881.
Ala. Gt. South.....	.....	.....	.....	\$138	\$214	\$244
Atch. Top. & S. F.....	.....	.....	.....	\$536	561	584
Burl. Cedar Rapids & N.....	.....	.....	.....	471	337	395
Calif. & St. Louis.....	.....	.....	.....	140	135	197
Central Iowa.....	.....	.....	.....	455	372	464
Central Pacific.....	1,079	776	821	706	802	826
Chesapeake & Ohio.....	.....	.....	.....	515	509	568
Chicago & Alton.....	807	709	654	749	913	908
Chic. & East. Ill.....	539	437	456	579	599	663
Chic. Mil. & St. P.....	461	835	460	467	404	422
Chic. & N. W.....	649	839	689	779	783	754
Chic. St. P. M. & Om.....	.....	.....	.....	375	367	369
Cin. Ind. St. L. & C.....	683	648	673	927	812	733
Cleve., Col. Cin. & Ind.....	940	822	852	1,057	1,082	1,051
Cleve., Mt. V. & Del.....	223	246	219	253	267	279
Denver & Rio Grande.....	223	264	337	325	741	944
Des Moines & Ft. Dodge.....	.....	.....	.....	280	399	566
E. Tenn., Va. & Ga.....	345	.....	344	.....	314	399

	1876.	1877.	1878.	1879.	1880.	1881.
Flint & Pere M.....	.....	.....	.....	383	459	488
Hannibal & St. Jo.....	634	609	791	605	799	694
Ill. Cen. in Ill.....	693	825	606	682	685	675
Ill. Cen. in Iowa.....	318	521	336	382	443	482
Ind. Bloom. & West.....	353	356	555	577	455	483
Louisville & Nashville.....	535	537	420	477	508	523
Memphis & Charles.....	266	247	.....	121	356	311
Mem. Pad. & Nor.....	134	127	67	96	168	182
Mo., Kan. & Tex.....	367	340	373	427	424	474
Mobile & Ohio.....	332	269	181	319	364	413
Nash. Chat. & St. L.....	389	451	354	347	369	385
Norfolk & Western.....	415	433	359	414	489	497
Northern Pacific.....	.....	.....	.....	421	458	504
Paducah & E. Town.....	153	152	.....	162	305	282
Pennsylvania.....	2,309	1,688	1,600	1,782	1,940	1,939
Phila. & Reading.....	1,535	1,066	843	1,558	2,470	2,208
St. L. A. & T. H. Main Line.....	.....	.....	.....	586	701	725
do. Belleville Line.....	628	706	855	778	559	541
St. L., Iron Mt. & So.....	520	612	569	863	980	1,008
St. L. & San Fran.....	415	412	351	443	470	432
St. P., Minn. & Man.....	.....	.....	.....	501	418	561
Scioto Valley.....	176	292	281	317	400	.....
Texas & Pacific.....	394	448	405	541	523	383

The number of roads that have had larger September earnings per mile than this year are: 16 out of 41 in 1880; 10 out of 39 in 1879; 6 out of 32 in 1878; 10 out of 32 in 1877; and 9 out of 30 in 1876. Thus in the great majority of instances the September earnings were better this year than in any of the others, last year coming nearest to it.

The month was the most unfavorable for earnings on through traffic between the East and the West that there has ever been. Rates on passengers and freight and in both directions were ridiculously low, and on the whole below the cost of transportation. And in spite of the low rates—hardly 40 per cent. of last year's rates—the through freight eastward was not, in the aggregate, any larger than last year. An accurate record is kept of this traffic, and there can be no mistake about it. The figures vary very little from last year's, though the shipments out of Chicago were some 60 per cent. greater than last year. But the through shipments westward in September were some 40 per cent. greater than last year, and the through passenger traffic was enormous—and entirely profitless. The gains have been on other traffic, which indeed is this year paying the cost of the through business. October, apparently, has been very much like September.

Foreign Railroad Notes.

The French Ministry of Public Works, in its budget for 1882, asks for \$1,000,000 to buy existing railroads with, and for \$2,490,000 to complete the roads bought in 1879 and shortly after. A number of little roads were bought in the early part of this year. Last July the Parliament authorized the purchase of a bankrupt road. It was bought in August. The bondholders got their money, the stockholders nothing. The state at the end of March had 1,445 miles of road, and estimated that the net earnings would be \$700,000 for the next year, or less than \$500 per mile. It should be remembered that nearly all the roads the government now owns were bought because they were hopelessly bankrupt. The state does not own all its roads, but leases some to railroad companies owning connecting roads and some to operating companies, like that which has been working the Cincinnati Southern. A law of Aug. 22 authorizes the Minister of Public Works to work provisionally 17 different roads, which the state is now building and expects to open by the end of the year. Altogether their length is 312 miles and the longest is 25 miles long.

In the French colony of Algiers there are eight railroads completed whose aggregate length is 797 miles long, the longest being 266 miles long.

The Prussian government is buying more railroads, but generally its offers have not been accepted by the companies owning the roads which it wishes to buy, namely, the Berlin & Anhalt, the Berg & Märk, the Berlin & Göttritz, the Cottbus & Grossenhain, and the Thuringian. The directors of the latter recommend the acceptance of the terms offered by the government, which are a yearly dividend of 8½ per cent. on the shares, with a premium of 5 per cent. at the time of sale. The Cottbus & Grossenhain management also accepts the government's offer, which is 3 per cent. on the stock and 5 per cent. on preferred shares.

Great activity in railroad construction is said to have prevailed in Austria-Hungary in 1880, because in that year a beginning was made of lines which in the aggregate will measure 570 miles—196 of them (13 lines) being light or "secondary" local roads, which are the feature in railroad construction now in most European countries. The length of roads actually completed in 1880 was 75 miles, of which 6½ were street roads and 29½ in mines and factories.

Early in September the Prussian state railroad management began what was intended to be a series of elaborate experiments on the effectiveness of different kinds of continuous brakes. The brakes tried were the Westinghouse and the Carpenter & Steele air brakes, the Sanders or Hardy vacuum brake, and the Heberlein friction brake. Besides engineers of the state railroads there were present representatives of the Imperial Railroad Bureau and the Ministry of Public Works, and delegates from Switzerland, France and Italy. At the end of September it was intended to have trains equipped with all these different systems of brakes begin to run regularly between Berlin and Breslau, there to be tried side by side in regular traffic for the term of three months, during which special attention will be given to their reliability, the ease of operating them and the cost of maintaining them. It is quite probable that this trial will decide what brake shall be used on the immense Prussian state

system, whose relations with the other railroads of Germany, and even of Austria, are so close that its adoption of such an apparatus will be a strong argument for its adoption on the other roads, for the sake of uniformity.

Austria and Hungary both became owners of state railroads in 1880, and both are to some extent committed to a state railroad system. Hungary bought one road that year—the Theiss Railroad. Austria took possession of the Rudolph Railroad Jan. 1, 1880, began the construction of the Arlberg Railroad and acquired the Albert Railroad. Austria has usually changed the responsible Minister (of Commerce) so often that he had no time to carry out any plan he may have formed. In 1880, however, one Minister followed the policy of his predecessor, and both favoring the state system, something was accomplished. The last one has in view a very considerable extension (by purchase or lease) of the state system. Just 25 years before, Austria began to sell its state roads; though not so much because dissatisfied with the results of government operation as because it was very badly in need of money.

The Belgian state railroads make the following report for the years 1880 and 1879.

	Number.		Earnings.	
	1880.	1879.	1880.	1879.
Passengers....	43,032,882	40,514,047	\$7,553,402	\$6,095,231
Baggage, pos.	372,104	338,833	180,454	166,739
Tons freight, small shipments.....	298,622	273,561	1,368,521	1,246,320
Tons freight, in car loads.....	22,173,684	18,591,150	12,884,919	11,687,619
Money shipments.....	669,664	779,455	45,700	48,872
Equipages, No.	855	869	7,092	4,273
Cattle, head....	56,588	50,162	236,259	169,181
Miscellaneous receipts.....			480,140	429,333
Total....			\$22,755,057	\$19,877,572

The very smaller number of pieces of baggage in comparison with the number of passengers will be noted, but doubtless this is merely what we would call "excess baggage," the passenger being allowed, 55 lbs. free, if they can put it under the seats of the passenger car in which they ride. The shipments of freight in quantities less than a car-load were but 13½ per cent. of the whole last year. The number of cattle carried seems to us a mere trifle. The Chicago, Burlington & Quincy Railroad alone has delivered nearly as great a number at Chicago in a single month. But the Belgian receipts from this traffic are comparatively large—more than \$4 per head in 1880, the longest haul possible being about 300 miles. At current rates from Chicago to New York (912 to 930 miles) our railroads receive about \$3 per head, and full rates are about \$6 per head.

In 1879 the Prussian government, desiring to purchase the Berlin & Anhalt Railroad, offered to pay 4 per cent. yearly on its shares. The shareholders voted to refuse this offer. In 1879 the company divided 5 per cent. and in 1880 6 per cent., and now the government offers 5½ per cent. on the stock. The company has paid an average dividend of 8.9 per cent. since 1839, ranging from 4 to 18½ per cent. yearly (in seven years more than 10 per cent.), but since 1875 only from 5 to 6 per cent. Its capital is about \$91,000 per mile, half of which is in 4½ per cent. bonds. The directors submit the government offer to the shareholders with a long account of the position and prospects of the road, and recommend them not to accept it.

Two members of the "Economic Council" have petitioned Chancellor Bismarck for a change in the old "one pfennig tariff," which is one pfennig (0.243 cent) per centner (110 lbs.) per German mile (4.68 miles), which is equal to 0.95 cent per ton of 2,000 lbs. per mile. This tariff applies to the coarsest freights, and has long been regarded as the *ne plus ultra* of low rates in Germany. The petitioners ask to have the rate graduated for distances, beginning at 1.90 cent per ton per mile for distances of 25 kilometres (15½ miles) or less, being reduced one-quarter for the next 25 kilometres, three-eighths for the next 50, and one-half for the second 100, and then for each additional 100 kilometres a reduction of about 0.12 cent per ton per mile, being made up to 600, the rate for the last 100 of which would be but 0.48 cent per ton per mile; for 600 to 800 kilometres they propose a rate of 0.437 cent, and from 800 to 1,000 a rate of 0.413 cent per ton per mile. The latter distance (621 miles) is the greatest named. At the proposed rate a ton of 2,204 tons of coal, ore or pig iron would pay (in dollars and cents) for different distances:

Distance.		Distance.		Rate.	
Kilometres.	Miles.	Kilometres.	Miles.	Rate.	\$2.67½
25	15½	400	249	\$0.32½	
50	31	500	311	0.56½	
100	62	600	373	0.87	
100	124	800	498	1.02	
300	186	1,000	622	2.19	

For manufactured iron and steel of all kinds a rate one-third higher up to 250 miles and one-half higher for greater distances is proposed.

The application of the coal rate above to the distance from New York to Chicago would make a rate of \$5.42 per ton of 2,000 lbs., or 27 cents per 100 lbs.

The Prussian Ministry of Public Works has issued orders regarding the uniform painting and marking of cars on the state railroads. All the freight cars are to be a brown-red, with yellow lettering; there had been heretofore a regulation to paint the passenger cars the same colors as those of the tickets for the different classes, namely, yellow for first-class, green for second, and brown-red for third. But yellow has been found not to stand well, especially when exposed to coal smoke, and the order is to paint the first-class green, but with yellow stripes and borders, which will distinguish them from the second-class cars.

The Austrian Ministry of Commerce is preparing to revise the railroad freight rates. A vast amount of information has been collected, sifted and arranged, and this month

a commission consisting of representatives of the Ministry of Trade, of the railroads and of the national industries was to meet and give its opinion as to what should be done. The Ministry can do little more than urge changes on the railroads. It has not the power to compel them to submit to its wishes.

In 1880 there were 9,325 miles of railroad in operation in British India, and there were employed on them 155,734 men, an average of 16.7 per mile—probably about three times as many as the average employed in this country. Nineteen-twentieths of these employes are natives, and their wages are extremely small. The Indian roads have cost an average of \$67,374 per mile, and earned last year \$5,622 gross and \$2,748 net per mile, which is a nearer approach to the figures for our railroads than is reported by any other country; these figures for the United States are: Cost, \$55,252; gross earnings, \$7,307; net earnings, \$3,030. The Indian roads earned net on their cost 4.08 per cent., the American roads on their capital (which is \$5,400 per mile more than their reported cost), 5 per cent. Just one-third of the earnings of the Indian roads was from passengers; 24 per cent. of the American earnings. The country on the Indian railroads is very populous, but the people are very poor.

In 1880 there were 838 miles of new railroad opened in British India. Nearly three-fourths of the Indian roads are of 5 ft. 6 in. gauge, the recent Canadian gauge; but within the past 10 years 2,334 miles of metre (39½ in.) gauge have been constructed, 56½ of 2 ft. 6 in. gauge, and there is one line 27 miles long of 4 ft. gauge.

They have blockades in Europe as well as America, and for similar reasons, and relief in one case at least is sought in the same way. A letter from Vienna dated Oct. 9 says that "the lack of storage room for grain in Pesth is felt more and more every day. The Hungarian State Railroad finds itself compelled, in order to prevent the overfilling of its storehouses and a blockage of traffic, to raise the price of storage to 5 kreutzers (2½ cents) per metrical centner (110 lbs.) per week, while the Austrian State Railroad storehouses refuse further receipts. The consequence of this was a fall of 10 and 15 kreutzers per centner for wheat on the Produce Exchange." This might have been cut out of a Baltimore paper a few days earlier with slight changes for measures and coins; and what follows is also significant: "The opening of the elevators of the Hungarian Discount and Exchange Bank is awaited with impatience under such circumstances."

The average number of miles run by each locomotive on the Prussian railroads in 1879 was 11,180. This was the smallest on record, but the largest, which was in 1878, was only 13,384 miles. In this country it is probably more than 20,000.

The Prussian Minister of Public Works has issued instructions directing the limitation of the whistling of locomotives as much as possible, especially in switching in towns.

German Passenger Accommodations.

At a recent meeting of the Railroad Science Society of Berlin an address on the "Arrangement and Furnishing of Passenger Cars" was delivered by a Mr. Wichert, who holds the office of "Inspector of Railroad Machinery." In the course of this he described the characteristic furnishing of compartments of the different classes in Germany as follows: First-class, six cushioned seats, each provided with separate arm rests and back; second-class, four sofas, for two persons each; third-class, two wooden benches, for five persons each; fourth-class, entirely without seats. The seats of the first and second-class are generally extensible, so that three or four persons can lie on them. The first and second-class compartments and now most of the third-class are provided with racks for baggage. The sides and roof of the first and second-class compartments are wainscoted or upholstered with silk, wool or oil-cloth, respectively. The third and fourth-class show the wood painted in oil. The first and second-class have foot covers in winter, and partly in summer also; they have curtains before the windows and lamps, and some of them are provided also with arm-slings, tables, mirrors and other articles of luxury; the third and fourth-class have no such furnishings.

Wichert estimates that on the average only 11.7 per cent. of the seats of the first-class compartments is occupied, against 23.2 per cent. of the second, 23.3 of the third, and 30 per cent. of the room in the fourth. On this account he believes that the first-class does not pay in proportion to the accommodation it obtains. The first, second and third-class pay their proper proportion, the fourth-class not quite enough; the first-class scarcely half what they should. He opposes the proposition to have seats in the fourth-class compartments, and says they are good enough for the price. The third-class passengers, who pay almost twice as much as the second-class, he would provide something other than hard, uncushioned wooden benches; he would have these lightly cushioned, curtains hung over the windows, and a window on each side of the compartment door, besides the one in the door, and have them made larger than at present. Usually at present in all compartments only the window in the door can be opened; he would have the side windows also made to let down. The second-class cars he thinks too luxuriously furnished, leaving little to be gained by going first-class. Many of the occupants of the latter, he says, travel on free passes; the paying passengers are either persons of rank, who feel compelled to go first-class, foreigners, who do not understand the circumstances, or people who pay the higher fare expecting to have a whole compartment to themselves.

At the end of 1879, Wichert said, there were no less than 2,653 passenger cars in Germany lighted with gas, almost exclusively by the Pintsch system, which is a German in-

vention. At the end of 1880 3,732 cars in Prussia alone were lighted with gas, and 1,487 more were about to be fitted with gas apparatus. Wichert says that the cost, including interest on the investment in gas works and apparatus, is not more than for lighting with oil or candles, though the illumination is twice as great. For some time after the introduction of railroads into Prussia, the cars were not lighted at all, and in 1844 the King himself thought it necessary to issue a note calling attention to the desirability of lighting the cars at night, and it was two years later before the practice became general. Now the Prussians claim to have the best lighted cars in the world.

Record of New Railroad Construction.

This number of the *Railroad Gazette* contains information of the laying of track on new railroads as follows:

Burlington & Missouri River in Nebraska.—Track on the *Republican Valley* line is extended from Culbertson, Neb., west by south 16 miles.

Evansville & Terre Haute.—The *Owensville Branch* is extended from Owensville, Ind., westward to Cynthiana, 6 miles.

Gulf, Colorado & Santa Fe.—Extended from Brazos Crossing, Tex., northward to Cleburne, 20 miles.

Jefferson City, Lebanon & Southwestern.—Extended southward to Russellville, Mo., 7 miles.

New Orleans Pacific.—Extended from Plaquemine, La., northwest to the Atchafalaya, 40 miles.

Southern Maryland.—Track laid from Brandywine, Md., southeast to Charlotte Hall, 21 miles.

Western North Carolina.—Extended from Ivy Creek, N. C., northwest 8 miles. Track is also laid on the *Ducktown Branch* from Asheville, N. C., west 6 miles.

This is a total of 124 miles of new railroad, making 5,763 miles this year, against 4,614 miles reported at the corresponding time in 1880, 2,859 miles in 1879, 1,724 miles in 1878, 1,824 miles in 1877, 1,913 miles in 1876, 1,080 miles in 1875, 1,524 miles in 1874, 3,130 miles in 1873 and 6,106 miles in 1872.

WESTERN GRAIN RECEIPTS continue light, and at Chicago and Milwaukee have decreased from week to week throughout October, the daily average having been for the successive weeks of the month this year and last, as follows:

	—Week—				
	First.	Second.	Third.	Fourth.	Month.
1881....	717,001	638,967	458,614	432,215	551,752
1880....	989,950	910,098	897,646	756,638	878,438

In September the average daily receipts of these two places were 738,519 bushels, against 772,316 last year. In October this year the receipts were 25 per cent. less than in September; last year they were 12 per cent. more; and while this year's receipts were but 5 per cent. less than last year's in September, they were nearly 60 per cent. less in October. For some little time recently the shipments of these ports, though not large compared with those of previous years, have been greater than their receipts. Much has been said of the great accumulation of grain at these markets and elsewhere; but although the stocks on hand in store are considerably larger than at this time last year, they are much less than at this time in 1879, and the whole accumulation in Chicago would suffice only for two or three weeks of brisk shipments. The demand for vessels for grain is very small, and lake rates on grain have never been so low before at this time of the year.

Taking the receipts of flour and grain together at these markets for the month of October for four successive years, we have the following aggregates, in bushels:

	1878.	1879.	1880.	1881.
Flour and grain....	17,438,455	24,707,366	24,738,125	18,088,185

The total is nearly a fourth less this year than in either 1880 or 1879, but a trifle greater than in 1878. The gain is in flour, the receipts of which, reduced to bushels, have been as follows, and the following percentages of the above totals:

	1878.	1879.	1880.	1881.
Bushels....	2,276,761	2,826,953	2,898,747	3,742,640
P. c. of total grain....	13.1	11.4	11.7	20.7

The development of the milling industry in the Northwest (chiefly in Minnesota) is strikingly shown by the fact that in this month, when the grain receipts of the Lake Michigan ports fell from 22,841,378 to 14,345,545 bushels (37 per cent.), their flour receipts increased nearly 30 per cent. And if we compare the wheat and flour receipts, aside from the receipts of other grains, we shall find a still more striking progress, as follows:

	1878.	1879.	1880.	1881.
Wheat, bu.....	6,050,332	9,610,891	5,007,880	1,679,320
Flour, bu.....	2,276,761	2,826,953	2,898,747	3,742,640
Total, bu.....	8,327,093	12,447,844	7,906,627	5,421,960
P. c. of flour.....	27.3	22.7	41.7	66.6

While in 1878 and 1879 only about one-fourth of the wheat reached Lake Michigan in the shape of flour, this year two-thirds of it has been flour. The total, however, is a much smaller quantity than in any other of the four years and not half so great as in 1879 in October. The gain in flour has been greater in proportion at Chicago than at Milwaukee. In 1878 Chicago received but about 21 per cent. more than Milwaukee, this year 55 per cent. more.

EAST-BOUND FREIGHTS have been again advanced by the independent action of the different companies, and unequally. Last Tuesday (Nov. 1) the Vanderbilt roads made their rates 20 cents per 100 lbs. on grain and flour and 25 cents on provisions from Chicago to New York, Philadelphia and Baltimore *et cetera*. This made its rate equal to the Pennsylvania's on grain but 5 cents higher on provisions. But on Wednesday the Pennsylvania advanced its rates 5 cents, to 25 cents per 100 lbs. to New York for both grain and pro-

visions, with the usual differences to Philadelphia and Baltimore; that is, 2 cents less to Philadelphia and 3 cents less to Baltimore. The roads are unable to take all the freight offering, but it is not because they are carrying an unusually large quantity of through freight to the East. The aggregate shipments are not greater than they have been for some months, and the Chicago shipments are smaller. For the week ending Oct. 22 they were 56,304 tons, against 56,995 in the second week and 60,578 in the first week of October, while for the four weeks ending Sept. 25 the shipments averaged 63,475 tons per week. The report of the Board of Trade for the fourth week of October shows nearly the same shipments as the week before. This week the roads were not all charging the same rates, but the distribution of the shipments seems to have been little affected by this fact. The Pennsylvania, which charged the highest rates, carried nearly the same as the week before, and as large a proportion of the whole as in September. It is probable, however, that the roads were kept busy last week by carrying freight engaged before the new rates were made.

The explanation of the fact that the roads are crowded now when these shipments are less than they were earlier in the season is the activity of local traffic, which absorbs cars altogether out of proportion to the business. At this time all kinds of perishable freight are urged forward. Shippers are in haste to get potatoes, apples and other staples liable to freeze, into market before winter comes; hay and other feed is wanted in the towns; and as this traffic cannot well wait, and, moreover, is profitable, it gets the cars in preference to through grain and provisions.

THE COLORADO FREIGHT TRAFFIC is apportioned by agreement among the three lines west of the Missouri which reach Colorado—the Union Division of the Union Pacific, the Kansas Division of the same company, and the Atchison, Topeka & Santa Fe. A statement of the earnings from this traffic has recently been made, which shows that the total earnings from west-bound freight from Jan. 1 to Oct. 15 last were \$4,370,597, and from east-bound only \$479,467, the west-bound being nine times as great as the east-bound.

The character of this traffic is radically different from that of the western agricultural states. It consists chiefly of supplies for the mining regions, and there is returned little except ores and base bullion, the small amount of agricultural produce raised in Colorado being consumed chiefly at home. However, the pool, we believe, does not cover the live-stock shipments, or only a small part of them, these being regarded as local traffic, and forming, probably, by far the larger part of the eastward shipments.

The total earnings for the 9½ months are at the rate of \$6,125,000 a year—a very considerable sum, considering that the country contributing it but a few years ago was an almost unknown and uninhabited wilderness, and that even now it is very thinly peopled. There cannot be many communities as large as this which depend so much on transportation or have to pay so large a proportion of their gross earnings for it, as not only must their freight be hauled immense distances, but a comparatively small amount of it must support a large mileage of railroad, the traffic being very thin on most of the Colorado lines, and the rates necessarily high in proportion. A little more than a year ago the total population of the state was less than 200,000, and it has to support a whole system of railroads, besides paying the freight earnings quoted above.

MINNESOTA is shown to be an important contributor of traffic to the Chicago, Milwaukee & St. Paul Railway by its report to the Minnesota Railroad Commissioners for the year ending with June last. In that year 24 per cent. of the company's earnings were made by its Minnesota lines, and no less than 1,944,137 barrels of flour, 7,304,764 bushels of wheat and 1,374,931 bushels of other grains were shipped eastward from its Minnesota stations, besides 2,000,000 bushels and more of wheat shipped westward. The wheat and flour together were equivalent to more than 18,000,000 bushels, which is nearly half Minnesota's production in 1880, and a good deal more than half of its exports. But doubtless a great deal of this is counted twice in the reports. The road carries wheat to market, or to mills in the state, and there delivers it, and afterwards may receive it again and carry it eastward to Milwaukee or Chicago. Out of about 1,800,000 tons of freight of all kinds carried by this road in Minnesota, 474,000 were grain and flour; animals and provisions only 18,000, and all other agricultural produce only 10,500; and as about 91½ per cent. of the grain and flour was flour and wheat, the overwhelming importance of this crop to the Minnesota railroads is evident. It afforded about 435,000 tons of freight; all other grains 40,000, and all other farm productions 28,500. Next in importance comes lumber, of which 76,700 tons were carried last year—about one-sixth as much weight as the grain supplied.

BRITISH RAIL EXPORTS TO THE UNITED STATES were large in September, but still smaller than in any previous month since March, and nearly twice as great as in September last year. Down to the end of September the exports to the United States had been 240,271 tons this year, against 171,631 last and 21,961 in 1879, this year the quantity being no less than eleven times as great as in 1879. Our takings this year were enough for 2,730 miles of track of 56-lbs. rails. We have taken but little more iron than last year, the increase being nearly all in steel rails, and of late months the exports of iron to this country have been especially small.

The numbers of tons of iron and steel rails exported from

Great Britain to the United States in each month this year and last have been as follows:

	1881.			1880.		
	Steel.	Iron.	Total.	Steel.	Iron.	Total.
January.....	1,705	5,660	7,365	7,350	7,941	15,291
February.....	4,380	10,419	14,799	6,162	6,808	12,970
March.....	14,891	10,829	25,720	4,010	10,518	14,528
April.....	28,050	10,352	38,402	7,075	13,727	20,802
May.....	22,028	17,306	39,334	22,968	6,305	29,273
June.....	21,082	10,610	31,692	10,342	17,572	27,914
July.....	20,096	6,728	26,824	7,054	7,785	14,839
August.....	23,820	5,763	29,583	11,853	4,419	16,272
September.....	20,111	5,922	26,033	10,052	3,880	13,932
Total.....	156,773	83,408	240,271	92,866	78,755	171,621

The steel rail exports have kept up very well; but the exports of iron rails, which average more than 10,000 tons per month during the first six months of the year, in the last three have averaged little more than 6,000.

LAKE RATES, which had risen to 2½ cents a bushel for corn from Chicago to Buffalo in the early part of last week, fell rapidly, notwithstanding the advance in rail rates, and this week are quoted as low as 1½ cents—which is nearly as low as ever in midsummer, though the higher insurance and the dangers at this season make the voyage costly. In fact, sailing vessels have generally refused to take cargoes at current rates, and the shipments, which are not large, are almost entirely by propellers, which have their regular trips to make and want the grain for ballast. The appearances are that the season for sailing vessels in the grain trade has already practically closed, a month before the frost will close it. At this time last year the vessels were getting 7 to 7½ cents—four times as much as now.

Canal rates during most of the week ending Wednesday have been 4½ cents a bushel for corn and 5½ for wheat from Buffalo to New York, but Wednesday an advance of ¼ cent was reported. The canal shipments for a week have been much larger than in previous weeks this fall. Last year at this time 7½ cents for corn and 8½ for wheat were the rates.

Ocean rates closed Wednesday at 3d. per bushel for grain by steam from New York to Liverpool. Within the past two weeks they have fluctuated between 2½d. and 3½d. At this time last year 7½d. was obtained, and then it cost 30 cents a bushel to send corn by water from Chicago to Liverpool, against about 14 or 15 now.

PASSENGER RATES have been but little changed since we wrote last week. The Pennsylvania and the Baltimore & Ohio charge \$14 between New York and Chicago, without rebate, the New York Central \$20 with a rebate of \$10.75. Attention is attracted by the Pennsylvania's 26-hour train, which we have spoken of elsewhere. The first one ran through on time. The New York Central proposes to put one on next Monday which will make better time by half an hour or an hour. The Grand Trunk has advanced its rates for tickets between Boston and Chicago from \$5 to \$7.25 (\$3 less than the New York Central rate), and sells round-trip tickets good for 30 days for \$14.50. It charges a dollar less for tickets to New York, reading, we suppose, over the Erie. It continues the sale of rebate tickets, the passenger paying \$8.75 more than the net rate, and receiving it back at destination. It has restored the rate from Chicago to Buffalo, from \$5 to \$10.

Fast Passenger Locomotive for the Pennsylvania Railroad.

The following are the principal dimensions of this engine of which we published a perspective view last week and give a larger elevation and half plan with this number. Next week cross-sections, some details and an account of the performance of the engine will be given:

DIMENSIONS, ETC., OF STANDARD CLASS "K" PASSENGER ENGINE AND TENDER.	
Gauge.....	4 ft. 9 in.
Diameter of driving wheels.....	78 in.
Wheel centres.....	Cast iron.
Tires.....	Steel.
Total wheel-base.....	22 ft. 7¼ in.
Length of rigid wheel-base.....	7 ft. 9 in.
Diameter of driving-axle bearing.....	8 in.
Length of.....	10½ in.
Diameter of main crank-pin bearing.....	4½ in.
Length of.....	4 in.
Diameter of parallel-rod bearing (front and back).....	3¼ in.
Length of.....	3¼ in.
Diameter of front tank-wheels.....	33 in.
Diameter of truck-axle bearing.....	4¼ in.
Length of.....	7¼ in.
Type of truck.....	Rigid centre.
Spread of cylinders.....	77 in.
Diameter of.....	18 in.
Length of stroke.....	24 in.
Travel of valve.....	5¼ in.
Outside lap of valve.....	1¼ in.
Inside.....	None.
Lead of valve.....	1-16 in.
Throw of eccentric.....	5¼ in.
Length of steam ports.....	16½ in.
Width.....	1¼ in.
Exhaust port.....	3¼ in.
Distance between centres of frames.....	44 in.
Boiler material.....	Steel.
Thickness of boiler sheets, dome.....	5-16 in.
fire-box, slope, waste and roof sheets.....	¾ in.
Thickness of sheet under dome.....	7-16 in.
smoke-box.....	1½ in.
Max. internal diam. of boiler (wagon top).....	50½ in.
Min. internal diam. of boiler.....	49¼ in.
Height to centre of boiler from top of rail.....	7 ft. 5¼ in.
No. of tubes.....	201
Inside diam. of tubes.....	15 in.
Tube material.....	Wrought iron.
Length of tubes between tube sheets.....	10 ft. 10 13-16 in.
External heating surface of tubes.....	1,085 sq. ft.
Fire area through tubes, ie s ferrules.....	2.9 sq. ft.
Length of fire-box at bottom (inside).....	9 ft. 11½ in.
Width.....	3 ft. 5¼ in.
Height of crown sheet above top of grate (centre of fire-box).....	3 ft. 1½ in.
Inside fire-box material.....	Steel.
Thickness of inside fire-box, sides.....	¾ in.
front, back and crown.....	5-16 in.
Thickness of tube sheets.....	¾ in.

Tube sheet material.....	Steel.
Heating surface of fire-box.....	120 sq. ft.
Total heating surface.....	1,205 sq. ft.
Fire grate area.....	34.8 sq. ft.
Maximum diameter of smoke-stack (straight).....	18 in.
Minimum.....	15 in.
Height of stack from top of rail.....	15 ft.
Width of cab roof.....	8 ft. 8 in.
Height of cab roof from rail.....	12 ft. 8½ in.
Width of cab.....	8 ft. 2 in.
Size of exhaust nozzle.....	2½ x 3¼ in.
Pressure of steam per square inch.....	140 lbs.
Nature of fuel.....	Anthracite coal.
Weight of engine, empty.....	82,700 lbs.
Weight on driving wheels.....	59,000 lbs.
Weight on truck.....	23,700 lbs.
Weight of engine in working order.....	93,700 lbs.
Weight on 1st pair of driving wheels.....	33,600 lbs.
Weight on 2d pair of driving wheels.....	31,700 lbs.
Weight on truck.....	27,400 lbs.
Engine fitted with driver brake.....	
Capacity of tank.....	2,400 gal.
coal-box.....	12,000 lbs.
No. wheels under tender.....	8.
Diam. of wheels under tender.....	33 in.
Material of wheels under engine truck and tender trucks.....	Cast iron, steel-tired.
Diam. of tender-truck journals.....	3½ in.
Length.....	7 in.
Weight of tender, empty.....	26,100 lbs.
loaded.....	56,300 lbs.
Tender fitted with water scoop.....	

Webb's Patented Locomotives.

Mr. F. W. Webb, the Mechanical Engineer of the London & Northwestern Railway, has recently taken out an English patent for somewhat novel improvements in locomotive. The driving-wheels and axles of his new engine are arranged in front and behind the fire-box, as in ordinary English and American passenger engines. A single cylinder is then placed in the centre of the smoke-box, between the frames, and is connected to a crank axle, to which the front driving wheels are attached. A pair of smaller cylinders is fastened to the outside of the frames, in front of and as near as possible to the forward driving wheels, and these cylinders are connected to the back pair of driving wheels. The two pairs of wheels are not coupled together; the front ones being driven by the large central cylinder and the back ones by the two outside cylinders, the object aimed at being to dispense with coupling-rods.

The following abstract of the specifications is published in *Engineering* of Oct. 14:

"In the illustration are two outside cylinders, the piston-rods of which are jointed with connecting rods to cranks on the driving wheels, behind the fire-box. The arch is also cranked for the connecting-rod of the single cylinder in the middle of the framing. If desired, two cylinders and double cranks may be used instead of one. The valve gear is by preference 'Pay's,' and is shown. The cylinders may be compounded, the steam going first to the after pair of the cylinders and then to the forward one, after passing through a reheater either in the boiler or in the smoke-box; but provision is made for feeding each cylinder with live steam. In some cases an additional pair of wheels are placed behind a', and are joined to them by coupling-rods. A slight cross motion is given to the valves to prevent grooving, their position being varied at every movement of the reversing lever. The fire-box is made in two parts, connected by gussets, in order to give elasticity and to allow the box to expand and contract with the tubes."

General Railroad News.

MEETINGS AND ANNOUNCEMENTS.

Meetings.

Meetings will be held as follows:
New York, Lake Erie & Western, annual meeting, at the office in New York, Nov. 29.
Virginia Midland, special meeting, at the office in Alexandria, Va., Nov. 20.

Railroad Conventions.

The International Road-Masters' Association will hold its adjourned convention in Cleveland, O., Nov. 16.
The Railway Conductors' Life Insurance Association of the United States and Canada will hold its annual meeting at the St. Charles Hotel in New Orleans, beginning at 10 a. m. on Dec. 7. The meeting will last probably two days.

Dividends.

Dividends have been declared as follows:
Evansville & Terre Haute, 2 per cent., semi-annual, payable Nov. 15. Transfer books close Nov. 5.
New York, Providence & Boston, 2 per cent., quarterly, payable Nov. 10. Transfer books close Nov. 1.
Boston, Concord & Montreal, 3 per cent., semi-annual, on the preferred stock, payable Nov. 15.
Cedar Rapids & Missouri River (leased to Chicago & Northwestern), 1½ per cent., quarterly, payable Nov. 1.
Cincinnati, Sandusky & Cleveland (leased to Indiana, Bloomington & Western), 3 per cent., semi-annual, on the preferred stock, payable Nov. 1.
Manchester & Lawrence, 5 per cent., semi-annual, payable Nov. 1.
Nashua & Lowell (leased to Boston & Lowell), 4 per cent., semi-annual, payable Nov. 1.
Pullman's Palace Car Co., 2 per cent., quarterly, payable Nov. 15.
Boston & Maine, 4 per cent., semi-annual, payable Nov. 15.
Pennsylvania, 4 per cent., semi-annual, payable Nov. 30. The May dividend was also 4 per cent., making 8 per cent. this year.

Mail Service Extensions.

Mail service has been ordered over the Detroit Division of the Wabash, St. Louis & Pacific from Detroit, Mich., to Butler, Ind., 121 miles, two trips daily.

Foreclosure Sales.

The Santa Cruz Railroad was sold under foreclosure in Santa Cruz, Cal., Oct. 1, and bought for \$198,705 by F. A. Hihn, as attorney for the Pacific Improvement Company. The new owners will repair the road, change it to standard gauge and make it a branch of the Southern Pacific. It is now of 3 ft. gauge and 21 miles long, from Santa Cruz, Cal., to the Southern Pacific at Pajaro station.

Southern Railway & Steamship Association.

At the second and last day's session in Washington, Oct. 27, reports of committees appointed at the previous day's session were received and disposed of. The Committee on Differences and Rates to the Coast reported in favor of 8

cents per 100 pounds in favor of lines from the West to Southern coast cities via Baltimore and New York, the Green line to charge to coast points 8 cents higher than Eastern lines. The report was adopted.

Western Trunk Lines Association.

At a meeting in Chicago, Oct. 26, the Commissioner reported that the New York Central had paid up all arrearages since Jan. 1 and was fully complying with the rules of the Association. Dispatches had been received from the Baltimore & Ohio saying that directions had been given to settle all claims from Jan. 1, and that three clerks were employed in making up the accounts. The Commissioner was instructed to inform the Erie and the Grand Trunk of the claims which should be included in the September report.

Meeting to Abolish Commissions on Passenger Business.

The following circular has been issued by Mr. W. H. Dixon, dated Chicago, Nov. 1:

"At a meeting of general passenger and ticket agents, held at this place, the undersigned was appointed Secretary.

"It was stated by many present that their managers were strongly of the opinion that the time had come to take up the matter of the abolition of all commissions, or other considerations, for the sale of the tickets, and to endeavor to obtain the co-operation of the united railway interests of the country to secure this end.

"The rates are lower than ever before, and consequently the commissions are a more serious burden than ever. All will admit that retrenchment in this direction is most desirable, and it is believed an agreement can be entered into that will be successful in reforming this abuse, if supplemented by orders from the managers prohibiting their agents from receiving commissions under penalty of dismissal.

"I have been requested by this meeting to ascertain if you would be willing to attend, or be represented, at a meeting of general passenger and ticket agents, having the above objects in view, and to ask for your prompt reply, as it is desirable that the agreement, if entered into, should take effect not later than Jan. 1, 1882.

"Please indicate in your reply your preference as to where and when meeting should be called."

Mr. Dixon's address is No. 148 Monroe street, Chicago.

Connecticut Railroad Commission—Hearing on Car Couplers.

Messrs. George M. Woodruff, John W. Bacon and Wm. H. Hayward, Railroad Commissioners of Connecticut, have issued the following notice:

A proposed law, providing that: "From and after July 1, 1881, every car owned or controlled by any railroad company located or operating a line or lines of railroad in this state shall be provided with coupling apparatus, the proper use of which does not require the presence of any person between the cars at the time of coupling, and which shall meet with the approval of the Railroad Commissioners," having been by the last General Assembly referred to us, "with instructions to report to the next session of the General Assembly upon the whole subject of car coupling."

We hereby give notice that we will give a public hearing upon the subject, at our office, No. 41 State Capitol, in Hartford, on Tuesday, Nov. 29, at 10 o'clock.

Middle States Weighing Association.

An adjourned meeting was held in Chicago, Oct. 25, for the purpose of completing arrangements for the formation of an organization which shall insure the weighing and way-billing of all car-load freight at actual weight, similar to the Western Weighing Association.

The meeting was well attended, 23 roads being represented, not including the roads in the Western Association, most of which were also represented. Mr. R. M. Frazer, who presided at the Cleveland meeting, again occupied the chair, and Mr. Frank Snow acted as Secretary.

Commissioner Midgley stated that in accordance with the request made at the Cleveland meeting he had sent to the various roads in the territory above named copies of the agreement of the Western Association and a copy of the proceedings of the Cleveland meeting. He hoped these papers had given them an opportunity to become familiar with the workings of the Weighing Association, and that they were now prepared to act definitely on the proposition to extend the system in operation west of Chicago and St. Louis to the territory east of those cities. Mr. E. P. Ripley, of the Burlington, Mr. J. T. Sanford, of the Rock Island, Mr. H. Tucker, of the Illinois Central, and Mr. C. G. Eddy, of the Northwestern, made statements showing the practicability and success of the system of weighing car-load freight at initial points of shipment and the profits made by doing so. One of these gentlemen stated that his road alone had made \$100,000 since the adoption of the system about a year ago.

When the question of forming an association was put to a vote it was found that all the roads within the territory named voted in its favor, with the exception of the Pennsylvania Company and the Lake Shore & Michigan Southern. The representatives of the latter roads stated that they voted against the proposition because their managers were not yet ready to give their consent for joining such an organization. Still they thought it might be possible that their roads would join at a future time. The refusal of these roads to join in the formation of such an association made it impossible to put the system into effect now, but it was decided by the other roads to go ahead and form a Middle States Railway Weighing Association, the organization to be put into effect when the roads not now willing to join get ready to come into the fold. An Executive Committee of nine was appointed to complete the details of the organization.

ELECTIONS AND APPOINTMENTS.

Chicago, Burlington & Quincy.—Mr. Lucius E. Johnson has been appointed Master Mechanic in charge of the shops at Aurora, Ill., in place of W. D. Rowley, resigned.

Chicago, Milwaukee & St. Paul.—It is stated that Mr. Hubbard C. Atkins will succeed Mr. Van Horne as General Superintendent. Mr. Atkins is now Superintendent of the Chicago, La Crosse and Prairie du Chien divisions; he began on the road as brakeman in 1856, and has been on it ever since, except for two years when he was Superintendent of the Winona & St. Peter road.

Chicago & Northwestern.—From Nov. 1 the Toledo & Northwestern line, including the road from Tama to Elmore and the lines operated westward from that line, will be known as the Northern Iowa Division. Mr. H. G. Burt is appointed Superintendent of the division, with office at Eagle Grove, Ia.

Mr. J. M. Whitman continues Superintendent of the Iowa Division, including all the lines in Iowa not comprised in the new division.

Mr. Charles D. Gorham has been appointed Superintendent of the Wisconsin and Milwaukee divisions in place of

E. J. Cuyler, resigned. Mr. Gorham is now Superintendent of the Western Division of the Pittsburgh, Ft. Wayne & Chicago.

From Nov. 1 the locomotive and car departments of this road are consolidated under one head and will be known as the Department of Motive Power and Machinery. Mr. George W. Tilton (heretofore Superintendent of Motive Power) is appointed Superintendent of Motive Power and Machinery, and Mr. James M. Boon (late of the Pittsburgh, Fort Wayne & Chicago), Assistant Superintendent of Motive Power and Machinery. The offices of both are at the West Chicago shops.

Cincinnati, Sandusky & Cleveland.—At the annual meeting in Sandusky, O., Oct. 19, the following directors (one-third of the board) were chosen for three years: J. A. Jeffrey, Columbus, O.; N. W. Pierce, Levi C. Wade, Boston. The board re-elected John S. Farlow President; N. W. Pierce, Vice-President; J. L. Moore, Secretary and Treasurer. The road is leased to the Indiana, Bloomington & Western.

Credit Valley.—At the annual meeting in Toronto, Ont., last week, the following directors were chosen: Wm. Arthur, W. J. Baines, J. Burns, P. D. Conger, R. Hay, G. Laidlaw, J. L. Morrison, E. B. Osler, Charles D. Rose. The board re-elected G. Laidlaw President; E. B. Osler, Vice-President.

Danbury & Norwalk.—The board has elected Roswell P. Flower President; James W. Hyatt, Vice-President; H. Williams, Secretary and Treasurer.

Mr. Flower afterward resigned and Vice-President James W. Hyatt was chosen President in his place.

The list of directors recently chosen is as follows: Nathan M. George, Lucius P. Hoyt, Edgar S. Tweedy, Danbury, Conn.; Orrin Benedict, Bethel, Conn.; James W. Hyatt, F. St. John Lockwood, Norwalk, Conn.; Edwin Sherwood, Southport, Conn.; R. P. Flower, Henry K. McHarg, New York.

Dayton & Hocking Valley.—The officers of this new company are: George W. Kneisly, President; Fred. Reibold, Secretary and Treasurer; S. F. Rock, Engineer. Office in Dayton, O.

East Tennessee, Virginia & Georgia.—The office of Col. E. W. Cole, President of this company, is to be removed from Chattanooga, to Knoxville, Tenn., very soon.

Evansville, Jackson & New Orleans.—At a meeting held in Henderson, Ky., Oct. 19, the following directors were chosen: R. L. Ellison, Paris, Tenn.; J. W. Blue, Marion, Ky.; J. C. McElrath, Murray, Ky.; Charles Anderson, Kuttawa, Ky.; S. H. Cassidy, Dycusburg, Ky.; G. L. Dixon, R. G. Hervey, R. A. Hill, J. J. Kleiner, Peter Maier, F. Semonin, Charles Viele, Evansville, Ind.; Wm. Fleming, Ft. Wayne, Ind. The board elected R. G. Hervey President; J. J. Morton, Treasurer.

Evansville & Terre Haute.—The new board has elected David J. Mackey President, W. D. Ewing, Secretary, Treasurer and Auditor; C. J. Grammer, General Freight and Passenger Agent.

Fitchburg.—Mr. C. L. Hartwell is appointed General Freight Agent in place of J. E. Tucker, resigned. Appointment to take effect Nov. 1.

Galveston, Houston & Henderson.—Mr. John Howard has been appointed General Ticket Agent, with office in Galveston, Tex.

Hanover Branch.—At the annual meeting in Rockland, Nov. 1, the following directors were chosen: Albert Culver, R. J. Lane, Rockland, Mass.; L. C. Waterman, South Scituate, Mass.; E. Y. Perry, South Hanover, Mass.; E. Q. Silvester, Hanover, Mass. The board elected E. Y. Perry President; C. T. Phillips, Clerk; Albert Culver, Treasurer.

Little Rock, Mississippi River & Texas.—Mr. Frank F. Hufsmith is appointed Master Mechanic, with office in Arkansas City, Ark., in place of Mr. Joseph Taylor, resigned.

Massachusetts Central.—At the annual meeting in Boston, Oct. 26, the following directors were chosen: Wm. A. Dickinson, Henry F. Hills, Amherst, Mass.; Charles A. Cutting, Wayland, Mass.; Franklin Bonney, Hadley, Mass.; J. Edwin Smith, Worcester, Mass.; Ginery Twitwell, Brookline, Mass.; George S. Boutwell, Wm. T. Parker, James W. Rollins, Boston; Silas Seymour, New York.

Mid-Louisiana.—The directors of this new company are: J. W. Bates, H. J. Bird, A. S. Herron, Leon Jastremski, D. C. Montan, Charles Wiecks. Office in Baton Rouge, La.

Minneapolis & St. Louis.—Mr. James D. Springer has been appointed General Solicitor, with office in Minneapolis.

New York & Connecticut Air Line.—The directors of this new company are: Wm. W. Douglas, Providence, R. I.; P. T. Barnum, H. R. Barrett, A. L. Winton, Bridgeport, Conn.; George R. Cowles, E. K. Lockwood, S. E. Olmstead, Norwalk, Conn.; W. T. Minor, Stamford, Conn.; Sheldon Collins, H. H. Hepburn, Charles D. Ingersoll, C. B. Sidell, H. Walter Webb, New York.

New York, Lake Erie & Western.—Mr. B. Thomas, Assistant General Superintendent, is Acting Superintendent of Transportation in place of Mr. P. P. Wright, who has gone to the Lake Shore & Michigan Southern road.

New York, Pennsylvania & Ohio.—At the annual meeting in Cleveland, O., Oct. 28, the following directors were chosen: Jarvis M. Adams, James F. Clark, P. D. Cooper, S. L. Mather, John Tod, Thomas Warnock, Cleveland, O.; W. H. Upson, Akron, O.; Henry B. Perkins, Warren, O.; W. J. McKinney, W. W. Scarborough, Cincinnati; George Boyce, Sharon, O.; Robert Harris, W. W. McFarland, New York. The old directors retired are J. H. Devereux, A. G. Duiman, Henry B. Payne, R. P. Ranney and J. H. Wade, who are replaced by W. H. Upson, a former director, Thomas Warnock, Secretary and Auditor of the company, Robert Harris, Vice-President of the Erie, W. W. Scarborough, a director and large stockholder of the Ohio & Mississippi and the Marietta & Cincinnati, and W. J. McKinney.

The board elected Jarvis M. Adams President in place of J. H. Devereux, and James F. Clark Vice-President in place of Jephtha H. Wade. Mr. Adams has been attorney for the company for a number of years; Mr. Clark has long been a director and was President of the old company during the receivership.

The following circular is dated Oct. 28: "At a meeting of the board of directors, held this day, Mr. P. D. Cooper, formerly General Superintendent of this company's lines, was appointed General Manager. The General Manager has full charge of the operation of the road and direct supervision over each department. The office of General Superintendent has been abolished."

New York, St. Louis & Chicago.—The directors of this new company are: C. R. Cummings, W. B. Howard, G. A.

Ives, Chicago; C. S. Brice, Lima, O.; James E. Neal, Hamilton, O.

North Carolina Midland.—At a meeting held in Winston, N. C., Oct. 27, Messrs. J. Wilcox Brown, J. T. Cowan and C. Y. Holland were added to the board. The directors then re-elected John S. Barbour President; J. T. Morehead, Vice-President.

Oley Valley.—The officers of this new company are: President, John O. Keim; Vice-President, Wellington B. Griesemer; Secretary, E. C. Griesemer; Treasurer, Israel M. Bertolet; Solicitor, Hiram Y. Kaufman; Chief Engineer, Henry F. Kendall. Offices in Reading, Pa., except the President, who is in Philadelphia.

Oregon Railway & Navigation Co.—The Engineering department of this company is constituted an independent department under the direction of A. Anderson, Chief Engineer. Mr. Anderson is also Chief Engineer of the Northern Pacific. Mr. H. Thielson remains in charge of the engineering work in Oregon and Washington with the title of Supervising Engineer of the Western Division.

Rochester & Pittsburgh.—Mr. J. M. Sawyer has been appointed General Freight Agent of this company, with headquarters at Rochester, N. Y., in place of Mr. D. G. Cauldwell, resigned.

Southern Railway and Steamship Association.—At its annual meeting last week the Association re-elected the old Board of Arbitrators, John Screven, Thomas H. Carter and W. R. Arthur.

United States Commissioner of Railroads.—The President has appointed Mr. Joseph K. McCammon Commissioner of Railroads in the Interior Department, in place of Theophilus French. Mr. McCammon is a lawyer, and is now Assistant Attorney General for the Interior Department.

Vermont Valley.—At a meeting held Nov. 1 Oscar Edwards, of Northampton, Mass., and Hugh Henry, of Chester, Vt., were chosen directors to fill vacancies. The board then elected A. B. Harris, of Springfield, Mass., President, in place of Gouverneur Morris, who declined re-election, and James H. Williams, Jr., Clerk and Treasurer, in place of James H. Williams, deceased.

Virginia Midland.—At a meeting of the board in Alexandria, Va., Oct. 29, Joseph Bryan, Wm. P. Clyde and T. M. Logan were chosen directors in place of Wm. F. Frick, Wm. Keyser and Osman Latrobe, resigned.

Col. T. M. R. Talcott, General Manager of the Richmond & Danville, was appointed General Manager of this road also. Mr. Peyton Randolph, the late General Manager, continues with the road as Assistant General Manager. Mr. W. M. S. Dunn was appointed Engineer and Superintendent, with office in Alexandria.

Western Maryland.—The new board has re-elected John M. Hood President and General Manager; Alexander Riemann, Vice-President; John S. Harden, Treasurer.

Zanesville & Southeastern.—The officers of this new company are: President, M. Churchill; Vice-President, James Herdman; Secretary and Treasurer, W. A. Graham. Office in Zanesville, Ohio.

PERSONAL.

—Mr. L. B. Ball, for 10 years past Road-Master of the Boston & Lowell road, has resigned on account of ill health.

—Mr. Horace R. Brooke, Car Recorder of the Trans-Ohio divisions of the Baltimore & Ohio road, was married at Newark, Oct. 26, to Miss Annie Hughes.

—It is understood that Mr. Louis Viele, formerly General Freight Agent of the Chicago, Rock Island & Pacific, is to be Commissioner of the new Peoria pool.

—Mr. E. J. Cuyler has resigned his position of Superintendent of the Milwaukee and Wisconsin divisions of the Chicago & Northwestern road, after long service with the company.

—Mr. A. B. Stickney, General Superintendent of the Canadian Pacific Railway, has resigned his position, to date from Dec. 31 next. His residence will be in St. Paul, Minn., after that date.

—Mr. Charles D. Gorham, Superintendent of the Western Division of the Pittsburgh, Ft. Wayne & Chicago road, has resigned that office to accept a position on the Chicago & Northwestern road.

—Mr. John Newell, General Manager of the Lake Shore & Michigan Southern road, is to have leave of absence for several months to give him much-needed rest. He will spend most of his vacation in Europe.

—Mr. Wm. Tracy, a prominent lawyer of New York and an authority on commercial law, died at his residence in this city Nov. 2, aged 77 years. He was for many years counsel for the Illinois Central Company.

—Mr. W. D. Rowley has resigned his position as Master Mechanic in charge of the shops at Aurora, Ill., on the Chicago, Burlington & Quincy road. Mr. Rowley was at one time Master Mechanic of the Kansas City, St. Joseph & Council Bluffs road.

—Mr. Walter Shanly, well known for his work as engineer and contractor on the Intercolonial, the Hoosac Tunnel and other important works, is reported dangerously ill at his home at Thorndale, Ont. He has lately been engaged on the Canadian Pacific.

—The Democrats of the Eleventh New York District have nominated for Congress Mr. Roswell P. Flower, who is a director of the Chicago & Northwestern and the Chicago, St. Paul, Minneapolis & Omaha and President of the Danbury & Norwalk Company.

—Mr. Joseph Taylor has resigned his position as Master Mechanic of the Little Rock, Mississippi River & Texas road, on account of ill health. The shops are in the Mississippi River bottom, and Mr. Taylor is unable to continue a resident of that unhealthy district. His address will be at Little Rock, Ark., for the present.

—Mr. L. P. Relyea resigned his position on the New York Central & Hudson River road Nov. 1, after an unbroken service of 33 years and six months, four years as a machinist in the Syracuse shops, eight years and three months as locomotive engineer and 22 years and three months as Locomotive Dispatcher at Rochester.

—Gen. J. H. Devereux retired from the presidency of the New York, Pennsylvania & Ohio road at the election last week, after several years' service as Receiver and President, during which the company has been reorganized and the road almost rebuilt. Gen. Devereux will give his whole time to the Ohio Railway Company hereafter.

—Mr. J. S. Antonelle, who is a contractor on the Buffalo,

Pittsburgh & Western extension to Salamanca, has certainly had a varied experience in railroad work, having had contracts in Europe, Asia and America, besides a canal contract in Africa, where he was employed with his father on the Suez Canal. Mr. Antonelle is a native of the island of Corsica.

—Mr. W. C. Van Horne has resigned his position as General Superintendent of the Chicago, Milwaukee & St. Paul road, to accept the office of General Manager of the Canadian Pacific. His resignation takes effect Jan. 1 next. Mr. Van Horne has had experience on many roads, and has served as General Superintendent on the St. Louis, Kansas City & Northern, the Chicago & Alton and the Chicago, Milwaukee & St. Paul, and as General Manager on the Southern Minnesota.

—Hon. Nehemiah Perry, a well-known citizen of Newark, N. J., died in that city, Nov. 1, of pneumonia. He was 65 years old, and had served as Mayor of the city, in the Legislature of the state and in Congress. He was for several years a director of the New Jersey Railroad & Transportation Company and of its successor, the United New Jersey Railroad & Canal Company. A singular fact connected with Mr. Perry's death was that his wife died of the same disease only a few hours before him.

—Gen. George B. Wright, who was the first Railroad Commissioner of Ohio, and as such did good work, and from that position was made President of the Atlantic & Great Western, and afterwards became Receiver of the Indianapolis, Bloomington & Western, is urged by his friends for the position of United States Commissioner of Railroads (the office till recently called the Auditor of Pacific Railroad Accounts). No one else with his experience in railroad affairs has ever been mentioned for the place, so far as we know.

—Mr. Robert E. O'Brien, who for most of the time since the establishment of Mr. Fink's office has had charge of the keeping of the accounts and the statistics, with the title of Secretary, has accepted an appointment as Chief Engineer of a new railroad in Manitoba, and left New York to take his new place Oct. 31. Mr. O'Brien's work has been chiefly that of an engineer, and for some time he was Chief Engineer and for a while General Superintendent of the Atlantic & Great Western. But in Mr. Fink's office he has shown extraordinary skill as an office manager and organizer. Nearly everything was new there and without precedent, but, very largely owing to Mr. O'Brien, the business there has been thoroughly systematized, and the force of clerks made extraordinarily efficient. His place will not be filled at present. Mr. Fink announces in a circular that for the present the duties of the office will be performed by himself.

—Mr. W. Martin, President of the Copper Queen Mining Co., gave a very enjoyable supper at the Hotel Brunswick, New York, Oct. 27, to his fellow-graduates of 1856, in commemoration of the twenty-fifth anniversary of their graduation at the Rensselaer Polytechnic Institute, at Troy, N. Y., to which a few personal friends from among graduates of the other classes were invited. Besides the host, there were present of the class of '56 C. C. Martin, Principal Assistant Engineer on the Brooklyn Bridge; Joseph P. Davis, Vice-President of the Metropolitan Telephone & Telegraph Co.; Hiram F. Mills, Lawrence, Mass.; James J. Allen, C. W. Boynton, Harvey S. Chatfield, Geo. F. Ellis and Edmund Yardley; and of other classes, fellow-students of 25 years ago, were Charles Macdonald, President of the Delaware Bridge Co.; Francis Collingwood, of the East River Bridge, and Prof. De Volson Wood, of the Stevens Institute, Hoboken. Letters were received from John A. Wilson, of Philadelphia, and J. H. Quackenbush, of Troy.

TRAFFIC AND EARNINGS.

Railroad Earnings.

Earnings for various periods are reported as follows:

Nine months ending Sept. 30:				
	1881.	1880.	Inc. or Dec.	P. c.
Northern Central.....	\$4,030,253	\$3,584,106	I.	\$446,147 12.4
Net earnings.....	1,248,406	1,164,934	I.	83,472 7.2
Month of September:				
Northern Central.....	\$429,565	\$464,094	D.	\$34,528 7.4
Net earnings.....	50,406	191,738	D.	141,332 74.7
Month of October:				
Duquesne & E. G.....	\$665,086	\$473,318	I.	\$192,368 40.7
Mil. & L. G. & W.....	71,395	49,124	I.	31,271 78.1
First week in October:				
N. Y. & N. England.....	\$68,295	\$57,747	I.	\$10,548 18.2
Second week in October:				
N. Y. & N. England.....	\$68,888	\$40,998	I.	\$27,890 27.8
Third week in October:				
Bur. & Cedar Rap.....	\$45,783	\$42,528	I.	\$3,255 7.7
Chl. Mil. & St. P.....	349,030	341,143	I.	7,887 2.3
Flint. & Pere M.....	38,793	37,362	I.	1,431 3.9
Han. & St. Jo.....	40,002	56,395	D.	16,393 13.2
Ind. & Bloom & W.....	41,306	46,590	D.	5,284 11.3
Mo., Kan. & Tex.....	300,194	159,918	I.	140,276 25.2
N. Y. & N. England.....	60,639	49,968	I.	10,671 21.1
St. L., I. M. & So.....	101,249	132,803	D.	31,554 23.5
S. P., Min. & Man.....	146,551	60,346	I.	86,205 111.4
Week ending Oct. 8:				
Grand Trunk.....	\$43,768	\$45,915	D.	\$2,147 4.7
Week ending Oct. 22:				
Chl. & Gd. Trk.....	\$39,093	\$36,802	I.	\$2,291 7.8

Grain Movement.

For the week ending Oct. 22 receipts and shipments of grain of all kinds at the eight reporting Northwestern markets and receipts at the seven Atlantic ports have been, in bushels, for the past eight years:

Northwestern shipments—				
Year.	Receipts.	Total.	By rail.	P. c. Atlantic receipts.
1874.....	2,805,498	3,405,068	321,261	9.4 3,496,749
1875.....	5,345,597	2,589,240	1,213,492	46.9 3,705,499
1876.....	4,495,985	3,910,976	1,350,160	34.8 4,010,233
1877.....	3,708,064	3,215,075	601,309	20.6 3,674,969
1878.....	4,417,000	3,498,848	891,528	25.5 5,637,089
1879.....	7,504,000	4,283,739	1,387,767	32.4 7,571,833
1880.....	8,686,749	5,639,945	1,874,401	33.2 7,695,300
1881.....	4,004,019	4,747,161	2,146,046	45.2 3,330,864

The receipts of the Northwestern markets have been smaller in the corresponding week but twice in eight years—in 1874 and 1877; last year they were more than twice as large. Compared with previous weeks they are 1,638,000 bushels less than the week before, and the smallest since the middle of May. The shipments of these markets are 16 per cent less than last year, but larger than in the corresponding week of any previous year. They are, too, 834,000 bushels more than the week before, and the largest for five weeks. Only 498 bushels are reported shipped down the Mississippi this week. The receipts of Atlantic ports are 4,365,000 bushels (57 per cent.) less than the year before, smaller than in any corresponding week for eight years, and smaller than in any fall week of any year before since 1876.

Of the Northwestern receipts Chicago had 51.5 per cent., Peoria 14.1, St. Louis 10.1, Milwaukee 8.7, Toledo 6.6, Detroit 3.5, Duluth 3.5, and Cleveland 2 per cent.

Of the whole decrease of 1,638,000 bushels, Chicago suffered 1,207,000, and its percentage, with one exception, was the smallest since May. But St. Louis had a smaller proportion than usual also, and there have been but two weeks before this year when the quantity of its receipts was so small, and these were before the Mississippi opened last February. Peoria, on the other hand, has larger receipts than for three weeks previous, and a larger percentage of the whole than before since May.

Of the Atlantic receipts New York had 52.1 per cent., Boston 17.1, Montreal 11.6, Baltimore 10.7, Philadelphia 6.6, New Orleans 2.2, and Portland 0.3 per cent. New York's receipts are about the same as the week before; the decrease of 470,000 bushels was at Montreal, Philadelphia and Baltimore. Philadelphia's receipts have not been so small before since the first week of the year, and it had but one week of so small receipts in 1880. There have been two weeks of smaller receipts at Baltimore this year—the first of January and the second of May. Its average down to October had been 815,700 bushels, against 358,000 in this last week. New York's average down to October was 2,275,000 bushels, against 1,736,000 in this last week.

Exports from Atlantic ports for five successive weeks have been:

Week ending—				
1881:	Oct. 26.	Oct. 19.	Oct. 12.	Oct. 5.
Flour, bbls.....	58,590	53,559	51,769	63,439
Grain, bu.....	2,761,643	2,352,219	2,451,884	2,488,195
1880:				
Flour, bbls.....	75,575	107,598	126,074	64,346
Grain, bu.....	5,302,054	5,800,518	5,387,439	5,700,784

The grain exports in these five weeks have not been half as great this year as last, and for the last eight weeks the exports have decreased 22,955,340 bushels, from 44,199,467 to 21,244,127, or 52 per cent., compared with those of the corresponding eight weeks of last year, while the flour exports fell off 229,447 barrels, or 31 per cent.

For the week ending Oct. 28 receipts and shipments at Chicago and Milwaukee were:

Receipts.				
1881.	1880.	1881.	1880.	
Chicago.....	2,369,242	4,493,215	2,551,062	3,019,233
Milwaukee.....	316,454	509,075	153,500	322,447
Both.....	2,685,696	5,002,290	2,704,562	3,341,680

The receipts were thus 46 per cent. and the shipments 19 per cent. less than last year. The receipts went on decreasing from week to week in October, averaging 717 bushels a day in the first week, 639,000 in the second, 458,600 in the third, and 447,000 in the fourth week. In this last week the shipments slightly exceeded the receipts, which has not happened before for a long time.

For this week ending Oct. 28 receipts and shipments at Buffalo were:

Receipts.				
1881.	1880.	1881.	1880.	
By water.....	1,623,000	4,163,000	1,016,000	1,434,760
By rail.....	618,200	893,200	715,200	1,570,300
Total.....	2,241,200	5,056,200	1,731,200	3,005,060

There is a decrease of 2,540,000 bushels (60 per cent.) in lake receipts, and of 275,000 (31 per cent.) in rail receipts; a decrease of 418,760 bushels (29 per cent.) in canal shipments, and of 855,100 (54 per cent.) in rail shipments. The rail shipments this year were much the smallest that have been reported since navigation opened, but the canal shipments were the largest for four weeks, and not much below the average since the low rail rates were made.

Receipts at four Eastern ports were:

New York.				
1881.	1880.	Phila.	Balti.	Total.
Bushels.....	1,868,547	433,329	229,700	468,662
P. c. of total.	62.3	14.4	7.7	15.6
1880.				
Bushels.....	4,503,971	409,450	1,200,100	1,569,910
P. c. of total.	59.1	5.3	15.4	20.2

Notwithstanding a decrease of 60 per cent. in the total Boston makes a gain. The falling off is great at New York, is very large, but not so large in proportion, as at Philadelphia and Baltimore. New York and Boston received 76.7 per cent. of the whole this year, against 64.4 last year, during this week. Of the New York receipts 1,070,753 bushels (59.7 per cent.) were by rail this, against 1,530,846 bushels (33.3 per cent.) last year.

Buffalo receipts of grain up to Oct. 31 are reported as follows, flour in barrels and grain in bushels:

Flour.				
1881.	1880.	1881.	1880.	
By lake.....	851,838	1,101,660	51,773,450	63,790,639
By rail.....	760,800	772,100	27,509,900	28,167,900
Total.....	1,612,638	1,873,760	79,283,350	121,958,539
Per cent. by rail.....	47.2	41.2	34.7	23.1

The large decrease was almost all in lake receipts, the rail receipts very nearly holding their own. Shipments eastward of grain received by lake were, in bushels:

1881.				
1881.	1880.	Decrease.	P. c.	
By canal.....	28,302,872	63,278,404	34,975,532	55.3
By rail.....	19,788,800	24,309,738	4,520,938	18.0
Total.....	48,091,732	87,588,142	39,496,410	46.2
Per cent. by rail.....	41.1	24.1		

The canal opened May 17 this year and April 20 last year.

Baltimore grain receipts in October were as follows, flour in barrels and grain in bushels, flour being reduced to wheat in the totals:

1881.				
1881.	1880.	Inc. or Dec.	P. c.	
Flour.....	115,421	130,755	D.	15,334 11.7
Wheat.....	1,248,247	4,107,711	D.	2,859,464 69.6
Corn.....	605,689	610,807	D.	5,118 0.8
Other grain.....	220,923	209,644	I.	11,279 5.4
Total grain.....	2,074,859	4,928,162	D.	2,853,303 57.9

Total flour reduced to grain.....2,651,964 5,581,937 D. 2,929,973 52.5

Other grain this year included 114,261 bushels oats, 69,251 bushels rye and 37,411 bushels barley. Exports in October were 19,207 barrels and 1,200 bags flour, 606,871 bushels wheat and 350,089 bushels corn.

Coal Movement.

Coal tonnages reported for the week ending Oct. 15 are as follows:

1881.				
1881.	1880.	Inc. or Dec.	P. c.	
Anthracite.....	600,640	647,715	D.	47,075 7.3
Semi-bituminous.....	105,347	78,167	I.	27,180 24.8
Bituminous, Penna.....	59,721	44,862	I.	14,859 24.4
Coke, Penna.....	42,474	32,687	I.	9,787 22.5

Much complaint is made by the semi-bituminous and bituminous coal operators in Pennsylvania and Maryland of the difficulty of getting cars. Cumberland and Clearfield shippers especially are unable to fill their orders for lack of cars, and the price of these coals has gone up at tidewater.

Colorado Freight Traffic.

The comparative statement of tonnage for eight days of October ending Oct. 15 of the Colorado business of the Atchison, Topeka & Santa Fe Railroad, the Kansas Division of the Union Pacific and the Union Division of the Union Pacific Railroad shows that the revenue from east-bound freight was \$15,901.29, making since Jan. 1 \$470,467.41.

From west-bound freight the total for the eight days was \$133,512.08, and since Jan. 1, \$4,370,597.08.

Traffic of New York Canals.

For the week ending Oct. 3, the following figures are reported:

1881.				
1881.	1880.	Decrease.	P. c.	
Tons shipped.....	197,365	231,594	34,199	15.0
Miles cleared by boats.....	266,291	350,215	83,924	24.0
Tolls.....	\$28,870	\$41,524	\$12,654	35.6

The principal freights, in tons, were:

1881.				
1881.	1880.	Inc. or Dec.	P. c.	
Lumber.....	66,760	49,794	Inc.	16,966 34.0
Grain.....	44,036	90,579	Dec.	46,543 51.4
Iron and iron ore.....	19,848	20,123	Dec.	275 1.4
Coal.....	34,936	36,551	Dec.	1,615 4.4
Sugar and molasses.....	316	121	Inc.	195 161.0

The coal shipments, after having been extraordinarily large for a long time, have suddenly become light.

Freight Business with Boston.

The Boston Herald says: "For the 12 months ending Sept. 30, 1881, the four trunk lines from the West delivered in Boston loaded cars as follows:

1881.				
1881.	1880.	Decrease.	P. c.	
Boston & Albany, at Albany.....	162,332	153,053		
Fitchburg, at Hoosac Tunnel.....	64,117	54,393		
Hartford & New Haven, at Harlem River.....	275	20,324		
Central Vermont, at St. Albans.....	71,000	64,800		
Total.....	331,369	292,480		

Total increase, 38,889 cars, or 13.3 per cent."

It will be seen that the increase was greatest both in actual number of cars and in proportion by the New Haven road, which receives freight from the Pennsylvania.

What a Barge Tow has Done on the Mississippi.

At the recent River Convention in St. Louis an excursion down the Mississippi was given to the delegates and invited guests. The party was accommodated in the Future City and four new barges of the St. Louis & Mississippi Valley Transportation Company. On the bow of the Future City a canvas screen was erected, bearing the following scroll: "Steamer Future City, built in 1873, W. A. Goll, master, has completed ninety-five round trips between St. Louis and New Orleans. Average number of days to each trip, 23. Has towed downstream 474 barges. Has transported downstream in cargoes, 446,962 tons. Has towed upstream 491 barges. Has transported in up-stream cargoes 41,677 tons. Has traveled 233,400 miles. If you tell this to Congress be sure to add that with an improved channel this record of work could have been increased 40 per cent. without any increase of expense. This means benefit to the producer."

Buffalo Canal Traffic in October.

The Buffalo canal business in October was as follows:

1881.				
1881.	1880.	Decrease.	P. c.	
No. boats cleared.....	849	1,424	575	40.0
Tolls.....	\$43,408	\$97,327	\$43,919	45.1

For the season the grain shipments were:

1881.				
1881.	1880.	Decrease.	P. c.	
Days open.....	166	195		
Flour, bbls.....	11,970,429	26,517,785		
Wheat, bu.....	14,468,896	35,200,992		
Corn, bu.....	1,546,924	964,857		
Oats, bu.....	27,995,240	63,138,662		

The decrease in the total is 35,143,413 bushels, or 56 per cent., and the average shipments per day have been but 168,546 bushels against 323,813 last year, a decrease of 48 per cent.

The business of the Erie Canal at Buffalo from the opening up to Oct. 31 was as follows:

supervision of an American of great experience. If the negotiations are successful, the engines will be delivered next year and in the first half of 1883.

Car Notes.

New car works are to be started at Canton, O. The company has purchased the buildings of the old agricultural works in that place.

The Michigan Car Co. at Detroit is building 250 box cars for the Michigan Central road, 75 of them being for the Blue Line.

The New York, New Haven & Hartford shops in New Haven, Conn., are building several new passenger cars.

The Flint & Pere Marquette shops at East Saginaw, Mich., are building some narrow-gauge freight cars for the Saginaw, Tuscola & Huron road.

Bridge Notes.

The Wrought Iron Bridge Co. at Canton, O., has taken a contract for three iron highway bridges at Bondville, Mass. The Builders' Iron Foundry in Providence, R. I., is making a number of iron columns for bridge piers for the New Orleans Pacific road. They are 8 ft. outside diameter and 10½ ft. long.

The last of the seven massive piers of the Albany & Greenbush bridge has been brought to completion. June 1, 1881, the first pile was driven, and after a lapse of hardly five months, the finishing pier is in position. It is anticipated that the bridge will be open for traffic by March. Its total length, including the approaches, is about 1,669 ft., or nearly one-third of a mile: width from centre to centre of trusses, 28 ft. It is 29 ft. above low water mark, and the railroad tracks will be about 18 ft. above the wagon way. The draw is 400 ft. long. Its weight is 1,500 tons, and a 30-horse power engine will be required to operate it. In the construction of the piers there have been used 2,375 piles, 335,280 ft. of spruce timber, 165,000 ft. of pine, 4,880 yards of masonry, 5,288 square ft. of coping and 54,000 pounds of iron.

Iron and Manufacturing Notes.

Chatham Furnace at Chatham, N. Y., is again in blast, after a stop for several weeks, during which extensive repairs were made. The last blast was confined to the manufacture of soft iron, suitable for cannon, for government use. The furnace is now making 10 tons and upward per day of car-wheel iron.

The spike mill of Dilworth, Porter & Co., in Pittsburgh, turned out in one day recently 519 kegs of spikes. This is the largest day's work ever done in the mill.

The Atlas Works last week delivered to the outer mills of the Siemens-Anderson Steel Works a 25-ton anvil block.—*Pittsburgh American Manufacturer.*

The old Novelty Iron Works, in Harrisburg, Pa., have been started up by Hummel, Fendrich & Co., and will hereafter be known as the Harrisburg Steel and Iron Works.

The works of the Union Switch & Signal Co., in Pittsburgh, are running over-time with many orders ahead.

The steel works of Hussey, Howe & Co., in Pittsburgh, are to be enlarged.

Of seven blast furnaces in New Castle, Pa., only two are now in blast, but three others are preparing to start up.

Keystone Furnace, at Chain Dam, Pa., made 308 tons of pig iron in one week recently.

Wm. Tod & Co., at Youngstown, O., are building two large engines for the Colorado Steel & Iron Co., also a lot of machinery for the Edgar Thomson Steel Works.

It is said that the old Superior Rail Mill in Allegheny, Pa., has been sold to a new company, which is also negotiating for adjoining property upon which to build steel works.

The Indianapolis Rolling Mill Co. has contracted with the Lewis Foundry & Machine Co., of Pittsburgh, for a complete plant for rolling steel rails.

The Rail Market.

The *Iron Age* says of steel rails: "There is more inquiry and more disposition to place orders as early as possible. Sales during the week amount to about 8,000 tons for 1881 delivery, at prices ranging from \$61 to \$63 at mill, a 4,000-ton lot of 60s having been taken at the lower figure; smaller lots at \$62 to \$63. For the first half of 1882 it is difficult to get an order in at all, and to the largest buyers \$60 is said to be an inside figure. Foreign orders are also favorable to sellers, and deliveries before April or May hard to obtain. There are several offers out for \$5s for shipment to Gulf ports, but it will be difficult to get them as early as desired. Prices may be quoted \$61 to \$63 for foreign rails, and about \$1 less at mill for American, according to date of delivery. Market firm."

Iron rails are firmly held, and no large sales are reported. Quotations are about \$47.50 to \$48.50 per ton at mill for heavy rails, up to \$52 to \$53 for light sections. English rails, \$45.50 to \$47.50 at port.

Steel blooms are higher, with few sales, buyers hesitating about present prices. Some sales are reported at \$45.50 to \$46 per ton, duty paid.

Old iron rails are a little higher, but not much business is reported. Philadelphia quotations are \$28 to \$28.50 per ton for T-rails and \$31 for double-heads. Old steel rails are quoted nominally at \$20 to \$27, but no actual business is reported and only very small lots are heard of.

Spikes are scarce and in demand; prices are \$3.10 to \$3.15 per 100 lbs., an advance. Fish-plates are quoted \$2.60 per 100 lbs.; track-bolts, \$3.25 to \$4.

British Rail Exports.

For the month of September and for the nine months then ending the exports of iron and steel rails from Great Britain to the United States have been, in tons of 2,240 lbs.:

	To United States.			To all other countries.		
	1879.	1880.	1881.	1879.	1880.	1881.
Iron.....	8,429	3,880	5,922	9,378	7,130	8,496
Steel.....	.....	10,052	20,111	31,241	36,150	60,631
Total.....	8,429	13,932	26,033	40,629	43,280	69,127
Nine months:						
Iron.....	8,760	78,755	83,498	34,952	109,863	101,236
Steel.....	13,201	92,866	156,773	254,394	367,836	450,924
Total.....	21,961	171,621	240,271	289,346	477,699	552,160

The exports to the United States in September this year were 87 per cent. more than last year, and for the nine months 40 per cent. more. We took 82 per cent. of the total British exports of iron rails this year, against 72 per cent. last year. The total exports of iron to other countries this year were 17,738 tons this year and 31,108 last. Other countries take steel almost exclusively—this year 294,151 tons, against the 17,738 of iron—while more than a third of the exports to the United States were iron.

The increase in rail exports to the United States having been 68,650 tons for the nine months, that in exports to all other countries was but 5,811 tons, and 43½ per cent. of the total went to this country, which has taken eleven times as many British rails as in the corresponding nine months of 1879. The total takings of this country this year were enough to lay 2,730 miles of track with 56 lbs. rails.

In Silence.

Some of the Ohio railroads have got so many injunctions

filed upon them that the employees have to read the papers every morning to know who is the legal boss. Occasionally they have a different boss at each end of the line, and then the fun develops along about the middle.—*Inter-Ocean.*

An exchange, speaking of the meeting of two long-separated brothers, railroad men, says: "They then conversed for some time in silence."

Elgin is the worst place in the world for chewing up men in railroad accidents, but Kingston struck a Tartar the other day, and though they tried to run over the man with a locomotive, it was no go. He was a Milwaukee shoveler, and fell in front of the engine, but was only rolled over a few times and pitched from the track. It took a little plaster to patch up the man's injuries, after which he was all right, but it took four men a day to repair the track.—*Rockford (Ill.) Journal.*

Lost.

The Utica (N. Y.) *Herald* of Nov. 2 says: "The Utica & Black River road sleeper is reported to have been cut from the Niagara Falls express at Albany, yesterday morning, and sent over the road to Whitehall by mistake. If the *Times* man finds a stray sleeper in his locality will he please lift it and hook it on to some west-bound train. It contained a wedding party, four potato buyers, a minister, an aged spinster and a good looking colored porter. The bridal party may be known by its new russet leather bag and lavender clothing. Two souls with but a single seat; two seats with plenty of room for another couple."

Freight Agents in an Illinois Penitentiary.

The Chicago *Tribune* of Oct. 26 has the following: As there will be a large number of General Freight Agents in this city to-day to take part in the monthly meetings of the fast freight lines, Mr. R. W. McLaughry, the efficient Warden of the Illinois State Penitentiary at Joliet, has embraced the opportunity to extend to them an invitation to visit that institution. Mr. McLaughry's letter of invitation reads as follows, and shows the object for extending the invitation:

"Thomas D. Gault, Esq., General Freight Agent Chicago, Peoria & Northwestern Railroad—DEAR SIR: I am informed that a meeting of the general freight agents of the different railroad lines throughout the country will be held in Chicago Oct. 26 and 27. A limited acquaintance with yourself and a few of your professional brethren has somewhat impressed me with the belief that it is only a question of time when I shall become officially acquainted with most of you. As this is a 'reformatory' institution, always anxious to provide the 'ounce of prevention' rather than the 'pound of cure,' it has occurred to me that a great missionary work might be done could the gentlemen composing the meeting above referred to be induced to spend a portion of the time allotted to its session examining into the discipline and workings of the Illinois State Penitentiary, and thus, as it were, 'view the ground where they must shortly lie,' unless they modify existing freight tariffs to meet the views of the Grangers. Will you, therefore, oblige me by extending to the gentlemen comprising the association and their wives and friends accompanying them a cordial invitation to visit the prison, examine its workings, and partake with us of a lunch on 'prison hash.'"

"Yours truly, R. W. McLAUGHRAY."

In accordance with this request, an order has been issued to the general freight agents which is as unique as Mr. McLaughry's letter of invitation. The envelope containing the order is embossed with a fishbone. The order, which is headed with a cut of a gang of convicts being marched to dinner by their keepers, reads as follows:

"ILLINOIS STATE PENITENTIARY, GENERAL FREIGHT AGENTS' DEPARTMENT.—Convicts of this class arriving at this institution on Wednesday, Oct. 26, 1881, by special train from Chicago, will be received at the depot by an armed escort, each guard having strict orders to shoot the first man who attempts to escape. The 'gang' will be formed in line and marched direct to the Stone Department, where each person will have his 'cheek' thoroughly bush-hammered and reduced to regulation size. They will then be marched to the bath house and thoroughly washed. A correct description will be taken of each person. They will then be assigned to their respective cells, each one provided with a sample of prison hash, and left to their own thoughts and meditations over their past misdeeds."

The following rules for the government of convicts in the General Freight Agents' Department are appended:

"Your attention is directed to the following rules:

"Rule 1. Your first duty is strict obedience to all rules and regulations, and the orders of the superior officer under whose charge you may be to work."

"Rule 2. You must not speak to any other General Freight Agent about cutting rates except by permission of your General Manager, and during working hours must give your undivided attention to your work, except when you go out to smile with a friend. You are expected to apply yourself faithfully to the department assigned you, and, after reasonable teaching, be able to cut rates without the assistance of the General Manager."

"Rule 3. You must be on duty by 10 o'clock a. m., and ready to examine the morning papers, after which 'brace up' for the reception of shippers claiming discrimination."

"Rule 4. At lunch time you must fall in and 'take the cake,' by 'cutting' if necessary."

"Rule 5. You are permitted to receive such papers as the General Manager may permit and rebate vouchers whether he permits or not."

"All the above privileges depend on your good behavior, and you are liable to be deprived of one or all of them for any bad conduct."

"By order of the Head Keeper."

In accordance with this order, the "Convicts of the General Freight Agents' Department" will leave for Joliet by special train on the Chicago & Alton Railroad at 11 a. m. to-day. Buses will leave the Grand Pacific Hotel at 10:40 a. m. It is understood that Sheriff O. L. Mann has consented to take charge of the "gang" in person, and will see to it that they are safely delivered at their future place of abode.

OLD AND NEW ROADS.

Atchison, Topeka & Santa Fe.—This company is building a cross-cut line about nine miles long from Sedgewick, Kan., on the Wichita Branch, northwest to Halstead on the main line. The object is to shorten the line for business to and from the West to the St. Louis & San Francisco road, which connects with this road at Wichita. From Sedgewick the Wichita Branch runs northeast to the main line at Newton, and the new cut-off will reduce the distance traveled by this business between Wichita and Halstead 10 miles.

Baltimore, Cincinnati & Western Central.—This is a revival of an old project, started when the narrow-gauge craze was at its height, for a road from Baltimore to Cincinnati on a line about half-way between the Baltimore & Ohio and the Chesapeake & Ohio. A contract has been let to an organization known as the Union Improvement Company, which is to receive its pay in stock and bonds of the railroad company, and expects to raise the necessary money by subscriptions to its own stock.

Boston & Cambridge.—Surveys and plans have been completed for this road from Mt. Auburn through Cambridge to Tremont street in Boston. The line surveyed is 4.87 miles long, of which it is proposed to make two miles elevated railroad in the city, about 1½ miles surface road and the rest tunnel or covered cutting. The estimated cost is about \$1,900,000. There will probably be much opposition to the elevated line.

Buena Vista & Gunnison.—This company has been organized to build a railroad from the Denver & Rio Grande at Buena Vista, Col., through South Cottonwood Pass to Hillerton, about 30 miles.

Buffalo, Pittsburgh & Western.—The entire line of the extension of this road from Kinzua, Pa., to Salamanca, N. Y., is now under contract, and work is progressing well on most of the sections.

Burlington & Missouri River in Nebraska.—On the extension of the Republican Valley line westward, track is now laid 16 miles beyond the late terminus at Culbertson and 198 miles from the main line at Hastings. The location is completed for 150 miles beyond the end of the track, and contracts let for about 50 miles of the grading.

Chicago & Atlantic.—Work is reported to be progressing well on this line, from Marion, O., to Chicago, which is to be the Erie line to Chicago. A report from Chicago to the effect that Mr. Vanderbilt had secured control of the company has been denied by those concerned.

Chicago, Burlington & Quincy.—This company has bought the old graded road-bed from Kansas City, Mo., to Lathrop, in Clinton County, and will, it is supposed, use it as a part of a new line to Kansas City.

The company has bought a large house in Burlington, Ia., and will fit it up as a hospital for the benefit of its employees.

Chicago & Northwestern.—This company's lines in Iowa from Nov. 1 are operated in two divisions. The Iowa Division will include the lines from Clinton to Council Bluffs; Clinton to Anamosa; Stanwood to Tipton; Callanan and Des Moines; the Maple River road and branches and the Iowa Southwestern road. The Northern Iowa Division will include the Toledo & Northwestern road from Tama to Elmore and the branches worked west from that road.

Chignecto Ship Railroad.—Interest has lately been revived in this project for a ship railroad across the narrow neck which separates the upper arm of the Bay of Fundy from Northumberland Straits, just on the line between Nova Scotia and New Brunswick. The St. John (N. B.) *Telegraph* says of the project: "Mr. Ketchum's idea is to construct a railway from near the mouth of the Tidnish River in Baie Verte to the head of Chignecto Bay, some distance to the south of the La Planche River. The railway is to consist of three parallel lines of track of the usual gauge, the width of the triple track being about 36 ft. and the rails of special make and size. The railway would be about 18 miles in length, and vessels to be transported over it would be raised by a hydraulic lift on to a cradle resting on bogies on the railway and supplied with keel and side blocks. Mr. Ketchum believes that propellers of 1,000 to 1,300 tons burthen, which with their cargoes would weigh upwards of 2,000 tons, could be safely raised in this way from the water and transported by means of the railway. The cradle with the vessel upon it would be drawn from water to water by means of powerful locomotive engines. In connection with this the proposed railway to Cape Tormentine to connect with the Prince Edward Island Railway would be built, and Mr. Ketchum thinks both might be constructed for about \$4,000,000."

Cincinnati, Indianapolis, St. Louis & Chicago.—The Cincinnati City Council has passed the ordinance to vacate certain portions of streets which this company wished to occupy in building its new union depot in that city.

A spur is to be built from St. Paul, Ind., to Geneva in Shelby County, to accommodate local business interests.

Cleveland, Mt. Vernon & Delaware.—The Court of Common Pleas at Akron, O., has confirmed the sale of this road to the bondholders under foreclosure. The confirmation is subject to further determination as to the priority of certain liens on the unfinished branch from Killbuck to Dresden.

The Receiver reports for September total cash receipts amounting to \$49,302.30; disbursements, \$45,750.58, leaving a balance of \$3,551.74 cash on hand.

Dayton & Hocking Valley.—This company has been organized to build a railroad from Dayton, O., by Fairfield, Yellow Springs, Mt. Sterling, Circleville, Adelphi, Nelsonville and Athens to Pomeroy on the Ohio River, a distance of 150 miles. Its projectors claim that it will furnish the Hocking Valley coal region with a new outlet in a westerly direction, with which it is not now provided; that it will run for much of the way through a good country and touch many flourishing towns and villages now without a railroad, and that it will furnish a short line by which coal can be supplied at low rates to some growing manufacturing towns. It is also claimed that there are coal lands on the line, not now worked, which will be opened as soon as the road reaches them.

European & North American.—This company has this year bought and put in its track 2,000 tons of steel and 1,000 tons of iron rails. About 30,000 new ties have been laid, and two ballast trains have been kept at work all summer. Two locomotives, four passenger cars and 91 freight cars have been added to the equipment.

Evansville, Jackson & New Orleans.—This company has been organized to build a road from Henderson, Ky., south by west to Jackson, Tenn., and thence southward. It is projected as an extension of the Indianapolis & Evansville road, now under construction.

Evansville & Terre Haute.—The Owensville Branch has been extended from the late terminus at Owensville, Ind., westward to Cynthia, six miles, making it 12 miles long from the junction with the main line near Fort Branch. Trains are running to the new terminus.

Gulf, Colorado & Santa Fe.—The Fort Worth Branch of this road is now open for freight business to Cleburne, Tex., 317 miles from Galveston and 99 miles from the main line at Temple Junction. New stations have been opened at Kopperl, 295 miles; Blum, 303 miles, and Cleburne, 317 miles from Galveston.

Henderson & Southwestern.—This company has been organized to build a narrow-gauge road from Henderson, Ky., south by west to the Tennessee line in Calloway County, just east of the Tennessee River. The distance is about 100 miles; the capital stock is fixed at \$700,000.

Hiawasse.—This company has filed articles of incorporation in Tennessee for a railroad from a point on the Cincinnati Southern in Rhea or Hamilton County eastward to the Tennessee River and thence up the Hiawasse Valley to the North Carolina line, about 60 miles in all; also for a branch

from Goose Creek in Polk County northwest to Spring City, 40 miles, and from Goose Creek west to Boyce, about 45 miles. The corporators are: Walter Allen, Erby Boyd, A. B. Bright, W. A. Hoskins, J. G. Stewart and J. A. Truby.

Iron Mountain & Helena.—Kansas City dispatches say that an agreement has been made between this company and the parties owning the road-bed and franchises of the old Kansas City, Memphis & Mobile road, for a consolidation of interests and for the construction of the road from Kansas City across Missouri and Arkansas, the town of Helena to be the southeastern terminus on the Mississippi.

Jefferson City, Lebanon & Southwestern.—Trains on this road are now running to Russellville, Mo., 19 miles southwest from Jefferson City. Grading is progressing actively toward Lebanon. The road is a branch of the Missouri Pacific.

Lake Monroe & Lake Jessup.—This company has bought the franchise, road-bed, right of way, etc., of the Lake Jessup, Osceola & Kissimmee River Railroad & Navigation Company, whose line extends from Lake Jessup to the headwaters of the Kissimmee River, and has been graded from Tuskawilla, on Lake Jessup, to Orlando.

Lebanon Springs.—John W. Van Valkenburgh, Receiver of this company, reports that the receipts of the road for the quarter ended Sept. 30, 1881, were \$138,919.05, and the disbursements \$130,217.47, leaving a balance on hand of \$8,701.58. The assets of the Receiver are \$266,972.64, and the liabilities \$254,445.68.

Lima & Columbus.—This company has been organized to build a railroad from Lima, O., on the Lake Erie & Western road, southeast to Columbus, about 80 miles. Several of the corporators are connected with the Lake Erie & Western Company.

Little Pilot Knob.—This company has been organized to build a railroad from Pilot Knob in Washington County, Mo., to a junction with the St. Louis & San Francisco road. The road will be 22 miles long and is intended chiefly to carry iron ore. The corporators are William G. Howe, Sanford Stewart, George A. Doane, J. Grant and Josiah B. Kendall, all of Massachusetts.

Manhattan Elevated.—The settlement between the elevated railroad companies has called out much opposition among the stockholders. One suit to enjoin the settlement has been begun and others are threatened.

Marietta & Cincinnati.—Under the long-pending foreclosure proceedings in the Court of Common Pleas of Ross County, O., a decree of foreclosure and sale is certain to be granted whenever the proper steps to secure it are ready to be taken by the security holders interested. The first and second-mortgage bondholders have already completed their organization to protect their interests in any reconstruction, and last week the third-mortgage bondholders met and appointed a committee, consisting of Messrs. Joseph Pool, William Lummie, S. M. Jacobus, Frank C. Hallings and D. J. Sprague, with authority to see that all necessary action was taken to provide for their recognition in such event. At the meeting a large proportion of the total issue of the third-mortgage bonds was represented. The committee will confer with the representatives of the other interests in regard to a satisfactory plan of reconstruction of the company.

Maysville & Big Sandy.—Work has been begun on this road, which is to extend from Maysville, Ky., to Ashland on the Chesapeake & Ohio, about 145 miles.

Mid-Louisiana.—This company has been incorporated to build a railroad nearly due east across Louisiana from the Mississippi state line to the Texas line, passing through Baton Rouge. It is proposed to build first the section from Baton Rouge to the Mississippi line.

Nelson Valley.—This company has been organized, with headquarters at Montreal, to carry out the project of shipping grain from the Red River Valley to Liverpool by way of Hudson Bay. The company propose to build a railroad about 400 miles long from Winnipeg, Manitoba, by the Nelson Valley to Churchill Harbor on Hudson Bay, and to maintain a line of steamers from that place to Liverpool. Dock and other shipping facilities are to be provided at Churchill Harbor.

New Haven & Northampton.—Regular passenger trains have begun to run on the Turner's Falls Branch, which is 10.3 miles long, from South Deerfield, Mass., to Turner's Falls. Freight trains have been running for several weeks.

New Orleans Pacific.—Track on this road is now laid to the Atchafalaya River, 40 miles northwest from the junction of the Baton Rouge Branch at Plaquemine, and 125 miles from New Orleans. Four gangs are at work laying track on the remaining gaps in the line, which are from the Atchafalaya to Cheneyville (the crossing of Morgan's Louisiana & Texas road), 42 miles; between Cheneyville and Alexandria, 38 miles; from Alexandria northwest, 22 miles. It is expected that all the track will be down by the end of the year.

New York & Connecticut Air Line.—This company has been organized to build the railroad from New Haven, Conn., to the New York state line, about 45 miles. It is a reorganization of the so-called "parallel road," which comes up every year regularly, but usually ends in surveying the line.

New York, Lake Erie & Western.—This company has bought a tract of land at Hornellsville, N. Y., to make room for further additions to the shops there. It is probable that stock-yards will also be established at that point.

For some time past surveyors have been at work running a line through the Orange Valley in New Jersey and thence southward. It is now reported that this company means to build a branch from a point near Franklin, on the Newark Branch, to the New Jersey Central near Plainfield, with possibly a spur to the Pennsylvania road near Metuchen. Nothing definite is known of the matter, however. It has been reported for some time that the company wanted a connection of this kind.

A curious attempt at robbery was made on Monday night last week, when a man took possession of a small telegraph and signal office over the Bergen tunnel and sent a long dispatch to Jersey City, purporting to be from Mr. B. W. Spencer, Treasurer of the company. The dispatch gave an account of a supposed attempt to rob the safe of the Paymaster (which then contained a large amount, as he was to start out on a trip the next morning), and ordered that the cash be sent to Mr. Spencer's residence in Passaic by a messenger who would be sent for it. The attempt was foiled by Mr. Hill, Superintendent of the Eastern Division, who refused to allow the money to leave the office unless Mr. Spencer should come for it in person. A man named Sipple, a telegraph operator, was arrested and is now on trial for the attempted robbery.

New York, New Haven & Hartford.—It is reported that the New York & New England Company recently made

to this company a definite proposition to lease its road. Officers of this company deny that any lease is contemplated, but it is understood that negotiations are pending between the two companies for a traffic agreement of some kind.

New York, Pennsylvania & Ohio.—An attempt was made to prevent the election of directors of this company by enjoining Rev. J. Lockington Bates, who came to this country as representative of the Voting Trustees, who hold the stock in trust under the reorganization. The Court refused to grant the injunction, however, and the meeting was held with only a formal protest from the defeated party.

North Carolina Midland.—At a meeting held in Winston, N. C., Oct. 26, the stockholders passed resolutions to make county subscriptions of bonds available for the construction of the road, and authorized President Barbour to execute a mortgage on the road-bed and property of the company for the same purposes. The directors located the line of the road as far south as Mooresville, having already located it from the Virginia state line to Winston.

Northern Pacific.—A contract for clearing the right of way and furnishing ties and timber for the main line for 100 miles eastward from Lake Pender Oreille has been let to Small Brothers, of Walla Walla, Wash. Ter.

The locomotive engineers of this road, having petitioned for increase of compensation, General Manager Haupt, under date of Oct. 27, issued a circular in reply. It says: "It will always be considered a duty by the present management to give respectful attention to any complaints which have a reasonable foundation, and apply the proper remedy when practicable." In accord with this the petition of the engineers has received careful attention. The results of inquiry show that the Northern Pacific road is paying to engineers as high as any other roads for the same kind of service. The average pay for the three classes of engineers on the Northern Pacific is \$3.25 per day, the highest being \$3.50 and the lowest \$3, with runs of 136 and 139 miles, called 1½ days. The circular also states that speed recorders will be retained on the trains, and that lignite, the use of which is an absolute necessity, will continue to be used, as no other fuel can be found between Minnesota and the Rocky Mountains. Some of the engineers have refused to use lignite. But, says the circular, "Pittsburgh coal in sufficient quantity cannot be procured for lack of lake transportation at any price, and if used its cost would be 25 cents per mile, run on the Dakota Division, 35 cents on the Missouri Division, and 45 cents on the Yellowstone. It would be cheaper to pay an engineer who could use this coal \$20 a day, rather than employ one who could not use it if he worked for nothing."

In the matter of grievances the circular says: "The managers of the Northern Pacific desire it to be understood that no efforts will be spared to correct any real grievance. That any proper petition presented in writing, or by a committee of representative men, will receive respectful consideration, and nothing will be left undone that is reasonable and proper to promote the comfort and advance the interests of all classes of its employees."

Ohio.—But little progress has been made in the litigation over the consolidation forming this company. An appeal from the injunction and contempt proceedings in the Court of Common Pleas at Columbus has been taken by the Vanderbilt party, but it is understood that this will wait the issue of the *quo warranto* suit in the Supreme Court. The latter will not come up for trial for several weeks.

Ohio Falls & Northwestern.—This company has filed articles of incorporation for a narrow-gauge road from Jeffersonville, Ind., northward to a point on Lake Michigan at the state line between Indiana and Illinois, a distance of about 320 miles. The capital stock is to be \$6,000,000.

Owensboro & Nashville.—A contract has been closed to complete the extension of this road from Owensboro Junction, Ky., southward 4½ miles to the mines of the Memphis Coal Company, by Jan. 1 next.

Pacific Railroad Agreement.—It is said that negotiations are in progress for a settlement of present points of difference between the Central and Union Pacific companies. The main points of the proposed agreement are reported to be substantially the adherence of each company to its present territory; the Union Pacific to stop its Oregon line at Baker City and to seek no new connections west of Utah; the Central Pacific to abandon its announced intention of building eastward from Ogden, and to seek for no new connection into Colorado.

Peachbottom.—It is reported that a majority of the bonds of this road are held in the interest of the Pennsylvania Railroad Company, and that the company when reorganized will be controlled by that company. The road can be of no great value to the Pennsylvania, though both the Eastern Division at Oxford and the Middle Division at York connect with its lines. The object of the purchase is probably to prevent the use of any part of the road as part of a new line between Philadelphia and Baltimore.

Pennsylvania.—The board has decided to make the November dividend 4 per cent., the same as that paid in May. It will require \$342,273 more to pay it, however, as 172,196 shares of new stock have been issued in the meantime.

Contracts were to be let this week for a branch line from the Pittsburgh, Virginia & Charleston Branch at Redstone Junction, Pa., across to Hogsett, on the Southwest Pennsylvania. The branch will be 17 miles long, through a coke country.

A second line is being run for the proposed branch line from Metuchen, N. J., to Long Branch.

Pensacola & Atlantic.—The contract for all that part of the grading not already given out has been let to A. J. Lane & Co., of Macon, Ga., who has just finished a large contract on the New Orleans Pacific. Their work will cover about 100 miles of this line.

Contracts have been let to Bates & Young for the piers of the Apalachicola bridge and some other masonry.

Philadelphia & Reading.—President Bond has issued an address to the shareholders of the company. He reviews the financial condition of the corporation, beginning by showing that in the first year of Mr. Gowen's Presidency the road earned its rentals, \$609,180, its fixed charges for interest, \$484,303, and in addition, \$3,276,919, equal to 11.3 per cent. as a dividend fund for \$29,023,100 of stock then outstanding. The last report published over Mr. Gowen's official signature as President shows that the company did not earn its fixed charges for interest and rentals, and earned nothing at all on its share capital. He alludes to the failure of Mr. Gowen's many promises; the wasteful expenditures of money; the coal speculations in which the road has been engaged and the payment of unearned dividends. He treats at length the subject of deferred income bonds, and closes by outlining the plan of the present managers. He regrets the necessity of referring to the previous management of the company, and submits a form of proxy for shareholders.

Mr. Gowen has also issued an address asking for proxies. He claims that he really represents a majority of the stockholders, and that his policy is the only one which can successfully bring the company out of its present troubles.

Pittsburgh & Youghiogheny.—A large force is now at work on this road, which is to run from Pittsburgh by the Monongahela and Youghiogheny valleys to New Haven in Fayette County, Pa., about 65 miles. The object of the road is to give the Pittsburgh & Lake Erie a connection with the Connellsville coke region, and also to reach a considerable coal district not now served by any railroad.

Quebec & Lake St. John.—Surveys for the entire line of this road have been completed, the line adopted being by Lake Edward and River Batiscan. Another line run through the Metabetchouan Valley was rejected as more difficult. The distance to Lake St. John is 179 miles from Quebec and 175 miles from the junction with the Quebec, Montreal, Ottawa & Occidental road. Lake St. John is 278 ft. above sea level and there is one summit to be passed 1,348 ft. above the sea. The line adopted has grades as high as 132 ft. to the mile, and 15.7 miles in all of 100 ft. or over. There will be three curves of 600 ft. radius and 20 of 700 ft.; in all 65 miles of curves and 114 miles of tangent.

The road is now completed to Raymond, 35 miles from Quebec. It is expected to open to settlement a large area of very fertile land in the St. John and Chicoutimi basins, and to give transportation for the extensive forests of valuable timber in those basins and in the Batiscan Valley.

Richmond & Mecklenburg.—It has been decided to build the line from Keyville, Va., on the Richmond & Danville road, southward to Clarksville, about 31 miles, through a fertile tobacco country. It will be built by the American Construction Company, and may possibly be extended from Clarksville southeast to Raleigh & Gaston road in North Carolina. The line from Keyville to Clarksville was partly graded several years ago, but no rails were ever laid. From Clarksville to the Raleigh & Gaston road is the old Roanoke Valley line, on which rails were once laid and trains run, but the iron, we believe, was taken up during the war and never replaced.

St. Lawrence & Ottawa.—It is stated that this road has been bought by the Canadian Pacific Company, which now owns all the lines out of Ottawa to the south and west. This road is 54 miles long, from Ottawa to the St. Lawrence at Prescott.

St. Louis & San Francisco.—Tracklaying has been begun on the extension of the Arkansas Division from Fayetteville, Ark., southward, and the road is expected to reach Winslow at the foot of the Boston Mountains, 22 miles from Fayetteville, next month. Just beyond Winslow there is a tunnel on which work is now in progress; it will probably be completed by next spring, when it is expected the road will be all graded from the tunnel to Ft. Smith, about 66 miles.

Contracts have been let for the extension from Pacific, Mo., to St. Louis, about 35 miles. The line is generally south of the Missouri Pacific track (which the company now uses), and is a little shorter than that road.

Southeastern, of Canada.—This company has begun to build repair shops at West Farnham, P. Q. The town gives a large tract of land and agrees to exempt the shops from taxation for a number of years.

Southern Maryland.—Track is now laid on this road from Brandywine Station, on the Pope's Creek Branch of the Baltimore & Potomac road, southeast to Charlotte Hall, in St. Mary's County, Md., a distance of 21 miles. A mixed train was to be put on this week to run to Charlotte Hall.

Toledo, Cincinnati & St. Louis.—The following circular has been issued by the company's financial agents: "The Toledo, Cincinnati & St. Louis Railroad is so near completion that it is possible now to determine its entire cost. The administration of the local affairs, the adjustment of the claims of the old companies—viz.: the Frankfort & Kokomo, the Frankfort & State Line, the Charleston, Tuscola & Vincennes, the Charleston, Neoga & St. Louis, which have been consolidated with the Toledo, Cincinnati & St. Louis Railroad—and the settlement for lands and rights of way have been so successful as to prove a source of congratulation. The securities having been delivered on account of local aid, rights of way and other claims, it is now proposed to give to the original subscribers to the Toledo, Cincinnati & St. Louis the first right to take the remaining \$1,000,000 first-mortgage bonds and other securities upon the following basis: For \$10,000 cash purchasers will receive \$10,000 first-mortgage bonds, \$20,000 second-mortgage income bonds, \$10,000 par value stock, allotments to be made *pro rata*. You can receive all the securities by paying in full, or payments can be made in three installments, to be called monthly. The right of the original subscribers to take these securities on the above basis will expire Oct. 25, 1881."

New articles of incorporation have been filed in Illinois covering the company's line from the Indiana state line to Chicago.

Union Pacific.—This company makes the following statement for the month of August:

Union Division	Earnings.	Expenses.	Net earn.
Union Branches	\$1,608,930	\$756,924	\$852,015
Kansas Division	392,375	249,448	142,927
Kansas Branches	604,242	285,471	318,771
Denver & So. Park	93,830	67,496	26,334
	127,457	95,980	31,477
Total	\$2,796,843	\$1,455,289	\$1,341,554

A fast train has been put on which makes the run between Omaha and Denver in 24 hours, going by the new Julesburg cut-off. This is eight hours less than the time hitherto made to Denver.

Western North Carolina.—The Greensboro (N. C.) *Patriot* says: "Mud Cut has at last been circumvented, and but little or no trouble from that source is expected in the future. A ditch 30 ft. wide has been cut around it with abundant fall to carry off the water that exudes from the little mountain that flanks it on one side, and that which has been the cause of the trouble in the past. The track is laid six miles beyond Marshall. Marshall nestles in a little valley, only a few hundred feet wide. The houses are scattered along the edge of the French Broad. Before the railroad penetrated the town there was barely enough room for pedestrian locomotion between the river and the mountain. With the train in Marshall, our informant says, the town is chuck full, with hardly room enough to turn around. To obviate this scrouging a trestle is being built along the edge of the river, and in future the track through the town will be abandoned. The material for the iron bridge at Warm Springs has been shipped. The structure will soon be in position, and by some time in November the trains will run through to Wolf Creek."

"On the Ducktown Branch the road-bed has been graded to Pigeon River, and six miles of track laid from Asheville. A construction train will be put on this branch this week." The end of the track is now 168 miles from Salisbury and eight miles beyond the late terminus.